A Lecture
ON
MYOPATHY AND SYRINGOMYELIA.

DELIVERED AT THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

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GENTLEMEN,—You may wonder why I have linked together two diseases so diverse in nature as the subject of this lecture. It is because they were connected by a link, the effectiveness of which you will at once admit, and also its actual utility—the link of error. I will show you a case which is certainly one of syringomyelia, and was thought at first to be also the subject of muscular dystrophy. If you study your errors properly and do not yield to the natural temptation to push them hastily out of sight with your foot, you may learn much from them. But you will probably find it easier to give special attention to errors in diagnosis that are not your own. You will not learn quite so much from them, but the habit, once acquired, will not be easily discarded. That which concerns one's self is naturally fixed more firmly in the mind and the memory.

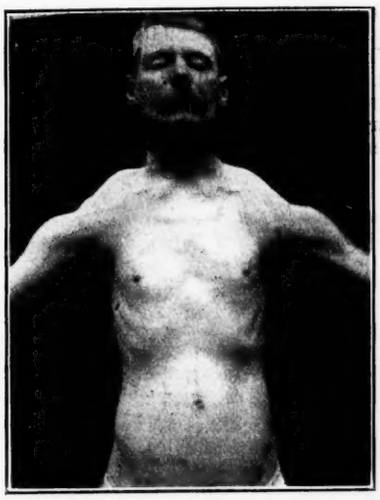

Fig. 1.—T. R., man with facio-scapular myopathy, showing abnormal elevation of the scapulae.

Fig. 2.—The same, from behind.

You know that syringomyelia is a malady that presents many of the features which are produced by various diseases of the spinal cord. But of these two are the more common—loss of sensation of pain and often to temperature without loss to touch; and, secondly, muscular wasting. The case I will show you presents both these symptoms. The sensory loss is a symptom which has to be sought for. This patient was ignorant of its existence. It is very easy for any person to be unaware of that which is only shown by the absence of discomfort. These cases illustrate the fact that pain is a precious danger signal, by the injuries its loss permits. The muscular wasting is that which brought the patient into the hospital, and it happens to present peculiar characters which bear a resemblance to those presented by a man with true myopathy now in the ward, whom I will show you first.

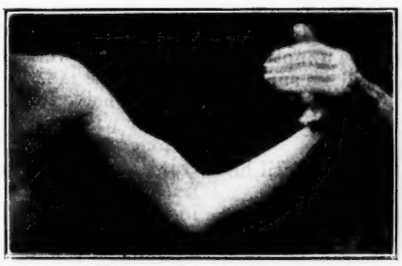

Fig. 3.—The same, showing contraction of the biceps.

The two maladies ought not to be confused, although they are both diseases of development. The one is defective structural formation in the spinal cord, whereby cavities are left in the process of its development or portions of embryonic neuroglial tissue fail to achieve their change into nerve elements, but remain as tracts of low consistence, which break down into cavities. These enlarge by distension and thus cause symptoms, or the residual tissue may increase by a slow process of growth. Myopathy, or muscular dystrophy, is a defect of muscular growth, not dependent on the nervous system, but inherent in the muscles, by which the fibres fail, sometimes early in life, sometimes later. The interstitial tissue grasps the nutritional influence and increases, but not enough to compensate for the defect in the fibres, unless fat forms among them, when the bulk of the feeble muscles may be much increased. This is the case in the early variety, the pseudo-hypertrophic form, which you probably know best; in this the muscles vary in size, the calves being usually largest, the extensors of the knees often increase in size in the lower part, the infraspinati are large, the lower parts of the pectoralis and the latissimus dorsi are small, and often they seem almost absent. The face is free. This form affects chiefly males, females seldom; sometimes all the males of a family suffer, and all the females escape, but transmit the disease to their sons. The malady increases in degree and extent as its subjects grow up; it impairs the power of breathing until some pulmonary disease develops; or it may be some slight catarrh, which would be a trifle to a normal individual, ends the feeble life soon after adult age has been attained.

But there are other forms of myopathy which do not present the increased size of muscles. On the contrary, all or most lessen in size, though often not to the same degree as in spinal atrophy. A more abundant growth of the interstitial tissue takes place, but it does not become the seat of fat formation, partly perhaps because the change usually takes place after the period of growth is over. One of these forms, which is particularly well marked, is termed the "facio-scapular" form, from the groups of muscles which are constantly involved. It is also called after Landouzy and Déjerine, its first describers. It is to this form that the case belongs which I am now going to show you (Figs. 1, 2, and 3). The malady sometimes begins in early life, but more frequently not until growth is nearly over, and it may go on increasing and becoming distinct in fresh parts even for thirty years. If you observe the face and test the closure of the eyelids by opposing it, the least force is sufficient to keep them apart. In a moment I will point out other indications of this form. This man is 44 years old. His son is here, who is likewise suffering, for this form of myopathy develops so much later than the pseudo-hypertrophic variety, that the subjects survive to an age at which they can transmit the disease. In the pseudo-hypertrophy, life usually terminates too soon for this, and the ability to pass it on to another generation is unknown. This facio-scapular form is eminently transmissible, as is shown by the family history of this patient. Of ten children in his family he is the only survivor. Three died in very early life, and of the six others all are known to have suffered—two females who died at 19 and 26, and four males who lived only to 21, 22, 35, and 37. Their mother also suffered, and from her they received it, and so did her own mother. On his father's side there is no indication of the malady.

In the neck the sterno-mastoids are small, but act well. The upper part of the trapezius, which extends between the occipital bone and the shoulder, seems gone on each side; the rest of these muscles is small but present. You know that this upper part is usually the last to be affected in spinal atrophy, the *ultimum moriens* Duchenne called it; but it suffers often alone in myopathy. The deltoids are good; the triceps small and weak, and each biceps is changed in shape, small in the upper and lower parts, but

full in the middle, standing out as a lump when put into firm contraction (Fig. 3). The forearm and hand muscles seem normal. The pectorals are irregularly affected; only small parts remain of the lower half. The serrati are gone, and the angles of the scapulae project, from the tilt of the bones; the erector spinae is small. The supraspinatus seems normal, and has not the prominence of the infraspinatus. This appears to be distinctly enlarged, and like most other muscles is the same on each side.

Wasting in the abdomen seems chiefly in the lower part of the oblique muscles on each side. The rectus is strong, but when he attempts to sit up the abdominal wall on each side bulges out, as you see, in a remarkable shape. In the legs, the muscles are generally small, but none are much affected except the anterior tibials and extensors of the toes, which are much wasted and have little power, so that in each leg there is foot-drop; but the peronei are good. The knee-jerks and ankle-jerks are present. He can stand on either leg and walk, but tends to catch his toes against any elevation. Sensation is everywhere normal.

It is not easy to learn the history of his symptoms, although he is not an unintelligent man. The impairment in the arms became worse about seven years ago, and his walking has suffered more recently. But he has been able to work at his trade until just now; it consisted in stuffing the cases of mattresses with hay, an occupation we should not think laborious, although he avers that it is very tiring, and doubtless it is to him. For seven or nine years he has been conscious of weakness and pain in the left shoulder and upper arm, and later of pain in the lumbar region. Attacks of influenza, twice with pneumonia, have seemed to add to his loss of power. The weakness in the feet has been conspicuous during the last year or two. The pains led to a former diagnosis of neuritis, but were probably caused by the strain on the fibrous tissues which the muscles usually support in part. It is probable that the gradual muscular failure dates from early adult life, but for long it was unnoticed, because the muscles that were affected could be supplemented by others, at any rate to a large extent. Moreover, the parts that are not wasted are rather large, and are perhaps the seat of some true hypertrophy. The weakness of the face was unknown to the patient until he came here. It involves no conscious disability.

Fig. 4.—The son, with facio-scapular muscular myopathy.

The great variations in the age at which this facio-scapular form begins and also the rapidity of its progress are sufficiently shown by the ages at which the affected brothers and sisters died, which I have mentioned. Other recorded cases illustrate the same fact, and in most of the families some of those who suffer have married and transmitted the disease, and this has happened, as in the family before you, with both sexes.

Our patient has a daughter and a son, but the daughter is only 11, and is said to present no sign of the disease. The sister who died at 26 was married, and left a daughter, but her state is not known. I show you our patient's son (Fig. 4). The orbiculares palpebrarum are conspicuously weak; they cannot overcome the gentlest hindrance to the closure of the eyes. The orbicularis oris is also feeble. The sterno-mastoids are good. The trapezii are greatly wasted. You can even see the projection of the cervico-dorsal spines. The serrati also have little power; the scapulae project when the hands are put forward. The pectorales are not markedly atrophied, but they seem weak. On the other hand, the infraspinati are abnormally large, as they are commonly in the pseudo-hypertrophic form. There is no distinct wasting of the leg muscles, but the strength of the flexors of the ankle is small. All reflex action, superficial and deep, is of normal type.

I now show you the other case, a woman who has certainly syringomyelia and was at first thought to be the subject of myopathy; but more careful observation only justifies the first. She is 31 years of age and married early, having two healthy children. Nothing can be learnt that suggests any family malady, tubercle or myopathy, and she has never had any indication of syphilis; yet her past history presents one peculiar feature, which is of considerable importance in reference to our present question. In early life she possessed unusual muscular power, such as is rare in women. She was fond of its exercise, especially in swimming and gymnastics. When about 16 she gave public exhibitions in each of these. She could walk thirty miles without fatigue, until her strength failed, five years ago. Her performances necessarily entailed constant practice, and the muscular exertion, long continued, led to widespread hypertrophy of the muscles, traces of which are still obvious, especially in the arms and calves.

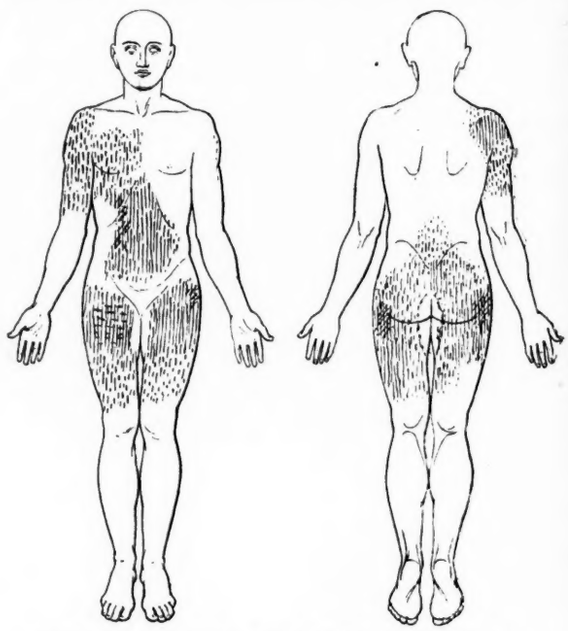

Fig. 5.—Analgesia—vertical lines, broken where incomplete. Thermanaesthesia—oblique lines.

That she is the subject of syringomyelia is evident from the extensive loss of cutaneous sensibility to pain, without loss, or with very limited and partial defect, of sensibility to touch. I show you the distribution of the loss to pain in this diagram (Fig. 5). Its degree is indicated by continuous lines where it is complete, and by broken lines where it is imperfect in degree. It is partial over the right shoulder and the upper half of the arm and on the right front of the thorax; on the middle of the abdomen it is complete, in an area narrow at the ensiform cartilage, broader below, ceasing above the pubes, where it is interrupted by a zone of normal sensibility, but it is renewed again by complete analgesia at the top of each thigh. It becomes partial at the middle of the thigh, and ceases a little above the knees. This loss passes to the back of the hips and outer part of the thighs, and it extends incompletely across the gluteal region, except in the distribution of the lowest sacral fibres, where sensibility is normal on each side of the anus. It passes, in a pyramidal form, up the lower half of the back. Temperature-sense is impaired only in the small regions marked by oblique lines; touch only in slight degree on the right thigh, marked by transverse lines. You will find those directions of lines generally advantageous for depicting the loss of the different forms of sensation—perpendicular for pain, transverse for touch,

oblique for temperature. It is distinctly convenient always to use the same system.

If you compare this diagram with one for the cutaneous distribution of the spinal segments, as shown by that of the nerve roots (which I may assume you know), you will see that there is very little correspondence. The chief correspondence is in the escape of the lowest sacral in the region on each side of the anus (these cavities usually cease at the lower extremity of the cord). Elsewhere little correspondence can be traced. The analgesia only occupies parts of the thoracic and lumbar segments. Yet the region affected is not irregular. Over the back it extends through a diminishing medial area, pyramidal in form, which ends upwards to a point about the ninth dorsal spine. In front a corresponding area is involved, which is continuous with the loss on the right side of the thorax. The loss on the abdomen is interrupted by the zone of normal sensibility, in the position of the twelfth dorsal segment, but larger, and the loss begins again in the higher part of the thigh in each leg and continues, to cease above the knee. Except on the thorax, there is considerable bilateral symmetry in the loss, although there is seldom correspondence with the spinal segments.

The explanation is that the cavities which chiefly interrupt the sensibility to pain are usually situated in front of the posterior horn, in the middle of the half-cord, and probably damage the path for pain, which seems to cross in the posterior commissure. They are often roughly symmetrical. The impressions conducted by the nerve roots seem to be soon rearranged in the cord for their upward conduction, and their interruption has thus an effect different in distribution from that produced by interruption of the nerve roots themselves. It differs also in nature, because touch escapes. Sometimes, however, a cavity occupies the posterior cornu, and may be so situated as to interrupt the root nerves after they have entered the cord. Then all forms of sensibility may be impaired, and the loss may correspond in distribution with one or more of the spinal segments. But the variations in the position of the cavities is so great that no generalization from the loss of sensation to the position of its cause seems yet to be possible.

Next to analgesia, muscular atrophy is the most common effect of syringomyelia. The cavities often occupy the region behind the anterior cornua, as I have just said. Their gradual enlargement may cause an invasion of the anterior horn with destruction of the nerve cells; the related anterior nerve fibres then slowly perish, and the muscles to which they are related. Thus a slow progressive muscular atrophy occurs very frequently in some parts, but the effect is not always slow. A cavity may increase rapidly; the erosion of the wall may expose an artery to influences which induce thrombosis, and sudden necrotic softening in the vicinity, or rupture. Then there is quick, even sudden, loss of power and acute degenerative changes in the electric irritability of the related muscles.

A sudden process evidently must have occurred in a cavity on the right side of the cord in this woman. She was not aware of any impairment of motor energy until it came, suddenly and gravely, five years ago. She was walking out with her child, and she fell, without cause. She could not rise again, but when helped up she did not fall, but managed, with care, to walk a short distance home. It is not easy to ascertain what had happened, but she could never again flex the right hip. The power of flexing the left hip is said to have failed slowly during the next year. Probably wasting came on at the same time in the higher part of the muscles in front of the thigh. Now both are weak and similar. The lower halves of the extensors of the knee are large and strong. When they are contracted they present a striking contrast to the upper parts, projecting just as does the middle part of the biceps in the man we first examined.

The extended legs cannot be raised from the couch on which she lies. We cannot see the flexors of the hips, the psoas and iliacus, or we should doubtless find them much wasted. I think that it is the condition of the thigh muscles, the extensors of the knees, with wasting in the upper parts and not in the lower, together with the large size of the calves, which suggested the presence of muscular dystrophy.

But another symptom seemed to confirm the opinion. If she sits on the floor, or kneels, she is unable to rise without help. In the attempt she makes to get up, to achieve the upright posture, she adopts the same expedient that is so constantly seen in pseudo-hypertrophic paralysis, and hardly ever in any other condition. She puts her hands on the knees or on the lowest parts of the thighs. This is to aid the extension of the knees. The weight of the trunk rests on the hip-joints, at the upper end of the lever formed by the femur. The fulcrum is at the knee and the power, the extensor muscles, acts on the femur, between the weight and the fulcrum, the position of least advantage. By the transfer of much of the weight, by the hand, to a position near the fulcrum, the power is beyond it, and then acts to much greater advantage. The greater ease with which then the knees are extended, and the weight of the body raised, is the reason for the adoption of this device in pseudo-hypertrophic dystrophy. Some patients supplement this also by making the hand climb up the thigh and so aid the extension of the hip, but the patient has not enough defective power in the extensors of the hip to need this. I have often wondered that patients with other forms of loss of power in the extensors of the knee do not adopt the device. Probably it is only discovered by reason of the gradual onset of the extensor weakness in the muscular disease during the period of growth, when the expedient comes, as it were, naturally to the versatile muscles of the growing child. I have often looked for it in other cases, but I think I have never seen it until this case. It obviously seemed to support the idea that she was also the subject of muscular dystrophy, but it is not a symptom, as you see, on which any absolute weight can be placed.

You can now better understand why we decide that she is not suffering from muscular dystrophy, and yet we can perceive that the mistake was easy. The two diseases are not mutually exclusive, nor have they any mutual predisposition. If they occur together it would be simply as the consequence of what, in our ignorance, we call chance. Indeed, syringomyelia has been found, I believe, to coexist with myopathy in 1 case out of more than 300 cases of the spinal affection which have been published, but the facts I have mentioned show how carefully such cases must be scrutinized, since in both diseases the muscles suffer.

In this woman the facts I have mentioned leave no doubt that syringomyelia exists, and also that a sudden lesion must have occurred in a cavity on the right side, extending its forward erosion into the anterior cornu, probably by thrombotic softening, with destruction of nerve cells, paralysing the flexors of the right hip and the upper part of the extensors of the knee. The corresponding grey matter on the left side of the cord, according to the patient's account, did not then undergo damage, but this followed, in the course of the next year, by a process of more gradual character. Where the destructive process by which the nerve cells perished was rapid or sudden, so far as a group of cells is concerned, the electrical condition in the muscle supplied would be the "reaction of degeneration." You remember what this is; faradic excitability, which depends only on the nerve fibres in the muscle, fails rapidly, but the muscular tissue responds in increased degree to the slowly-interrupted voltaic current, and the kathodal closure contraction ceases to be the first, and is replaced by the anodal or positive. The time which has elapsed since the destruction, and the fact that this is not complete, prevents any evidence from the faradic response. The normal fibres that remain are sufficient to give a contraction to this. But on carefully examining the muscle in the upper part of the thigh with the voltaic poles, we find that the first contraction, on slowly increasing the strength of the current, is at the anode, not at the kathode. This shows that in the muscle are many fibres of which the nerves have undergone degeneration, although the fibres of the muscle have not wholly perished, and they still present this feature. It shows that there has been an acute process in the nerve centre. It is a feature never found in myopathy, and compels us to ascribe the state of the muscles to that of the spinal cord.

Thus it is clear that the condition of the muscles in this patient is not the same as in the man whom we first examined. Although they are similar in partial enlargement, the variation has not the same nature or the same distribution. The smaller part presents indications that it

depends on the state of the spinal cord, disease of which is proved by the presence of the change in sensibility of the skin, of which the patient was unaware, and which corresponds in greatest intensity to the region in which the lesion must lie which causes the wasting of the muscles. The remarkable size of those that are not wasted is explained by the patient's history in the rather distant past. At the time when the growth of all structures is most active her muscular system underwent a long course of systematic exercise, very unusual in degree, of which the remains are still distinct.

It seems strange that a girl with this congenital defect in the spinal cord should have been disposed to undertake such remarkable feats of muscular power without any family inducement to cultivate agility and energy. But her defect in the spinal cord is always chiefly in the posterior and medial parts, in the sensory regions of the cord. The change in the motor region is the result of a later extension, and it rarely occurs in early life. We may, perhaps, conceive that the motor processes, which so dimly affect consciousness, have not the normal afferent check from the sensory processes which should influence them. Of this the subject is quite unaware. Restraint may be effective before sensibility is subjectively lessened; we are often determined by influences which do not enter our consciousness. Some years ago a rather distinguished student was working here who was a really great cyclist. He had won many of the best cycle races in the country. Soon afterwards he came to me about some symptoms he felt in his hands, and on examining him I found such extensive loss of sensibility to pain as could only be explained by syringomyelia. I had to advise him to give up all severe exertion, including the races to which he was devoted. We must remember that the central motor nervous system represents the muscles, and all prolonged muscular effort has an influence on the spinal cord similar to that which it has on the muscles, and this disturbance of the circulation, and accumulation of the products of fatigue, resulting from severe exertion, must be of a nature to increase any morbid processes, the extent and progressive tendency of which we cannot safely estimate. I do not know what has become of him. But the history of this woman seems to show that severe exertion is unwise for such a sufferer. Hence it is very important to be familiar with the early symptoms of the malady, and to discover its existence, so that the life of the patient may be wisely regulated. The fact that a sufferer can generally feel well a touch, although pain is perceived dimly or not at all, explains the common ignorance of the malady, in spite of the frequency with which its presence is indicated by spontaneous pain. From this the patient whose case we have been considering was entirely free. It is often also accompanied by a sense of coldness, without any objective indication of the temperature which is complained of. These subjective sensations seem due to the irritation of the conducting fibres within the cord which are in process of destruction, and the pain may cease when sensibility is lost.

But tactile sensation is often impaired. It is very little affected in this patient, only in the front of the right thigh. Sensibility to temperature is lessened in the regions indicated in the diagram by oblique lines. Often the loss is almost as extensive as that to pain. The sensitiveness to pressure is often also lost, and that of the deeper structures may be impaired as well as that of the skin, although often not in corresponding degree. The cavities may extend higher up, into the medulla and pons (syringo-bulbi this is termed), and impair some of the cranial nerves, especially the sensory part of the fifth. The dissociated analgesia of this affection may remind you of the common loss in tabes, in which the perception of pain is so commonly lost and that of touch so rarely. When the analgesia involves the deeper structures an arthropathy may occur in syringomyelia, very similar to that of tabes. But this is most common in syringomyelia in the arms and in tabes in the legs. Other collateral consequences of sensory defect are also found which I cannot now even mention. I have brought the case before you briefly to illustrate the diagnostic difficulty, and to impress on your mind the fact that we must always beware of the significance of a superficial similarity, and remember that the resemblance may be due to very different causes, and may almost cease, on careful scrutiny.

Remarks
ON
ANTISPASMODICS AND THE CURE OF SPASMS.

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For the relief of spasm and the many distressing sensations which may be grouped under that head many kinds of treatment may be adopted. In the case of general convulsions and some forms of local spasmodic contraction we may act upon the nervous system generally, and make use of means which reduce its sensitiveness to morbid impressions. For this purpose we turn to the narcotics—opium, chloral, belladonna, the bromides, etc. But these remedies should never be used indiscriminately or without due consideration of the nature of the attack and the presence of a removable cause. They may form the main treatment of the case, or may be employed with the object of reducing general nervous excitement while special means are being used for the relief of local distress.

In certain forms of local spasm we may make use of remedies which are known to have a special sedative action upon the disturbed part, such as grindelia in spasm of the respiratory tract; belladonna, chloretone, and codeina in intestinal cramps; valerian and asafoetida in the mysterious functional nervous derangements which are massed together under the head of "hysteria."

Again, we may seek to produce a tonic effect upon the system as a whole by the use of strychnine and nux vomica, ergot of rye, sulphate and valerianate of zinc, quinine, arsenic, the stronger preparations of iron, and drugs of similar action. These, however, are of little value during an actual paroxysm, but exert their influence gradually by reducing the general nervous irritability, so that the system becomes less intolerant of morbid stimuli, and ceases to respond with such petulant activity to disturbing influences. Their action in this respect is deliberate, and rarely of more than passing value, unless persevered with for weeks or even months at a stretch.

The above may be said to include the special classes of drugs which are generally understood by the term "antispasmodic"; but they do not embrace the whole subject of the cure of spasm. The best and only satisfactory kind of antispasmodic treatment is that which strikes at the root of the evil and suppresses the irritant to which the disturbance is due. In many persons, especially in children and young women, the source of the ill is often a deranged condition of the digestive organs, and when this is remedied the spasm ceases. General and partial convulsions, tetany, and many kinds of tonic and clonic spasm, both general and local, may be induced directly by peripheral and especially by gastro-intestinal irritation. Children, with their immature and impressionable nervous systems, are curiously amenable to these influences, and in some such subjects any form of irritation seated at any part of the body may be capable by reflex mechanism of setting up automatic and irresistible contraction in voluntary or involuntary muscles. The tendency to such morbid response to stimuli is greatly enhanced by a lowered state of the general health. In the case of tetany, for example, the disorder rarely attacks a healthy sturdy subject, but is met with almost invariably in children whose nutrition is temporarily at fault, either from natural delicacy or domestic mismanagement. The spasmodic contractions of this complaint seem to be the consequence, more or less direct, of toxic absorption from the alimentary canal. A poison is generated which shows a special preference for the motor fibres and ganglion cells of the anterior horn of the spinal cord; and, in cases of long standing, atrophy and sclerosis have been noted in these cells, combined with some thinning of fibres. More than this, however, is required to explain the mechanism of tetany, for autointoxication is common in children of all ages, while tetany is only an occasional consequence of gastric dilatation and decomposition of food. It seems

probable that autointoxication heightens the natural irritability of the nervous system, and prepares it to respond with exceptional briskness to reflex stimuli, but that the actual attack, like the convulsions of rickets, is the direct consequence of reflex mechanism, and cannot occur without it.

In the management of such a case the true antispasmodic treatment consists in putting a stop to the digestive derangement which is the cause of the symptom. We clear away fermenting food from the bowels by a full dose of rhubarb and soda, arrest excessive intestinal secretion, and by a careful diet, in which a judicious restriction of milk and other fermentable elements in the food takes a foremost place, seek to restrain the formation of toxins in the alimentary canal. These measures may have to be reinforced afterwards by tonic treatment and the use of the accepted antispasmodics in order to invigorate the nervous system and allay its irritability; but these remedies have little value at the beginning of the treatment, and begin to be useful only when the disturbed digestive functions have been attended to and brought into a healthy state.

But it is not only tetany which can be set up by the irritation of gastro-intestinal disturbance. In neurotic subjects—especially in neurotic children—general convulsions and even modified muscular contractions, which bear a close resemblance to those which are characteristic of the so-called "*petit mal*," may be induced by irritation arising from this source. It is far from uncommon to find the instability of the nervous system, which may be called a normal state in the infant, persisting in growing boys and girls to the age of 10 or 12 years. As a consequence, confused and purposeless muscular contractions and convulsive movements, such as are familiar enough in the rickety infant, may be met with at an age which suggests a graver view of the attacks than a truer conception of their real nature would be able to support. These cases are often called "epilepsy," and even treated as such with long courses of bromides. It is not for the first time that I venture to protest against the practice of lumping together all cases of convulsions in the growing child under this one misleading designation. I maintain that so long as the seizures occur only in the course of a digestive disturbance, or are accompanied by a rise of temperature, or happen in a child who is suffering from any form of peripheral irritation, or, indeed, in one who is not, to all appearance, in his normal state of health, we are entitled, whatever may be the age of the child, to indulge a hope that the seizures will cease when the cause has been removed and adequate measures have been taken to prevent its return. The term "epilepsy" cannot fitly be applied to such avoidable attacks as these, but should be confined to cases where the patient seems to be well, with nerves normally at rest and no sign discernible to lead to a suspicion of the onset of any such untoward visitation.

There are other forms of functional nervous derangement which may arise from digestive trouble and acid fermentation in the bowels. The fantastic muscular twitchings which go by the name of "tics" and "habit spasms" usually owe their origin to this cause. These movements by their persistency occasion much distress to parents, and are often the despair of the medical attendant, especially if he follow the prevailing method of attempting to control them by the use of nerve tonics and antispasmodics. Under such treatment they are, no doubt, intractable enough; but if the spasms are accepted as a significant sign of intestinal disorder, and treated by proper measures for its relief, no special difficulty is found in keeping them in check. Antacid and stomachic remedies, combined with a rigid diet from which sweets and fruit are carefully excluded, and starch allowed only in the form of bread and toast, soon give rise to a surprising change. Not only do the movements cease, but the general nervous unrest disappears; and there is a welcome return to a normal state of physical and mental tranquillity, which a recurrence of the morbid stimulus is no longer able to disturb. Early treatment on these lines is, however, of great importance, for if the movements have been allowed to continue for months unchecked until the habit has become confirmed, more difficulty is found in bringing them to an end. Still, even in these cases, diet and the administration of arsenic in good doses, combined with alkalis in a bitter infusion, will often produce very encouraging results, especially if the patient can be induced by hopes of reward to bring his own power of self-control to our help. Punishments are useless.

Head shaking, again, and rhythmical rotatory movements of the head combined with nystagmus (the spasmus nutans of infancy) are also commonly due to digestive troubles in a neurotic subject. The milder attacks often yield readily to a dose or two of rhubarb and magnesia, especially if it be combined with a restriction in the quantity of the fermentable element of the food. But in the severer forms of the complaint special tonic treatment will always be required in addition. When the digestive functions are working satisfactorily, iron should be given, and if the child be over 12 months old, a meal of pounded mutton or chicken should be included in his dietary. Spasmus nutans is, of course, a different thing from the "nodding convulsion" (eclampsia nutans). The latter is only seen in epileptic idiots, and is incurable.

Although it is the digestive tract which is most frequently at fault in cases of reflex spasm, it is not the only source from which the evil influence may spring. Any irritant, wherever situated, even a mild one if sufficiently prolonged or often renewed, may lead in a suitable subject to some such morbid response. A common example of this is seen in the nervous commotion which is excited in some children by post-nasal irritation due to adenoid vegetations. The growths themselves are probably concerned in the disturbance only indirectly. Alone they excite little irritation unless very numerous, but by their presence they render the naso-pharyngeal mucous membrane morbidly susceptible, so that it readily becomes the seat of a troublesome catarrh which exerts a curiously teasing influence upon the nervous system. General convulsions sometimes, and laryngeal spasm commonly, owe their origin to this source of worry. The more I see of laryngeal spasm, either in the form of laryngismus stridulus or stridulous laryngitis, the more convinced I become that in these cases the source of the irritation is the naso-pharynx. To me catarrhal croup has come to mean adenoids, and to suggest at once treatment by measures directed to the suppression of a post-nasal catarrh. The same thing may be said of simple laryngeal spasm without catarrh (laryngismus stridulus). Children who are attacked by these dangerous seizures are almost always sufferers from adenoid vegetations and post-nasal irritation. They are also often the subjects of rickets, but this is not always the case. It is a mistake to assume, as is commonly done by writers upon this subject, that laryngismus is a complication peculiar to the rickety state. No doubt in that phase of malnutrition there is a special irritability of the nervous system which so heightens its response to disturbing influences that the morbid rejoinder can be provoked by a comparatively moderate impression. But the occurrence or not of spasm depends less upon the constitutional state of the child than upon the nature and strength of the irritant. If the provocation be adequate, spasm may be induced in a neurotic subject at any period of infancy and childhood in rickety and non-rickety subjects alike. Repeated observation has convinced me that morbid contraction of the laryngeal muscles occurs almost solely amongst the sufferers from adenoids, and is to be ascribed directly to naso-pharyngeal irritation. Some time ago I recorded several cases of laryngismus affecting newborn infants, in whom the frequent spasms involved the gullet as well as the larynx, so that swallowing became almost impossible. All these infants were suffering from adenoid overgrowth and severe catarrhal obstruction of the nasal passages; and it was interesting to note that the force and frequency of the attacks varied in exact proportion to the greater or less intensity of the naso-pharyngeal distress. In cases such as these, then, as in tetany, the true antispasmodic treatment consists in measures which allay the local uneasiness and put a stop to the nervous commotion by removing the cause which has brought it about.

These measures consist in applying remedies locally to the naso-pharyngeal mucous membrane. This is done most easily in young children by dropping medicated fluids into the nostrils and allowing them to trickle down into the pharynx. One of the best of these is resorcin dissolved in normal saline solution (2 to 5 grains to the ounce). Of this a few drops may be instilled into the nostrils several times a day as the child lies on his back.

If the spasms are violent and repeated the local treatment must be reinforced by the internal use of special antispasmodics. In the case of the larynx, the best of these, beyond all comparison, is the liquid extract of grindelia—a drug which has a very decided sedative action upon spasm of all muscles connected with the respiratory apparatus. It may be given in doses of ten to thirty drops, in water flavoured with the liquid extract of liquorice and well sweetened with glycerine, every four hours. In the case of young patients grindelia is an antispasmodic of the utmost value. In asthma, in whooping-cough towards the end of the spasmodic stage, and indeed in all varieties of respiratory spasm, we may turn to grindelia with full confidence in its beneficial effect.

Another instance of reflex spasm is seen in the rigidity of the muscles of the neck which not infrequently occurs in cases of acute otitis. The child lies in a state of seeming stupor, but is not entirely unconscious and shows no sign of pain. He holds his head stiffly and slightly retracted, and whimpers if it is moved, especially if an attempt is made to bend it forward. The stiffness ceases at once when the purulent contents of the tympanum are allowed to escape by puncture or rupture of the membrane.

The above are the most prominent and persistent varieties of reflex spasm, the only rational treatment of which consists in measures which produce a direct impression upon the source of the nervous trouble. Other minor examples of spasmodic muscular contraction of similar mechanism are met with in daily practice. The severe nocturnal cramps in the limbs which are a common subject of complaint by the habitual dyspeptic are due to acidity, and can be put a stop to by an alkaline draught taken at bedtime. Acid collections in the caecum and the small intestine near by may set up cramp in the bowel by causing spasmodic contraction of its muscular coat, and so penning up flatus and preventing it passing away. The painful over-distension which is apt to ensue can be satisfactorily relieved by the administration of the insoluble alkalis, such as the heavy carbonate of magnesia, combined with a quarter or a third of a grain of codeine given several times in the day. Codeina is a valuable sedative in all forms of abdominal pain, and has the advantage over opium of interfering little with the regular action of the bowels. Under certain conditions, however, belladonna is to be preferred. Spasmodic contraction of the muscular coat of the intestine may induce an obstinate form of constipation which sometimes amounts to impaction of the bowel, and resists the action of strong aperients given again and again. In most cases of this kind the difficulty can be overcome by repeated doses of the green extract of belladonna, giving a $\frac{1}{4}$ grain every three hours until the pupils begin to dilate. This, the first sign that the system is beginning to respond to the remedy, is followed quickly by relaxation of the intestinal spasm and copious relief.

In every case, then, of spasmodic contractions, either of voluntary or involuntary muscle, especially in such as occur in children, before resorting for their relief to nerve tonics and antispasmodics, we should search carefully for some sufficient signs of local trouble to which the nerve disturbance may be referred. In young people, especially in rickety infants and rapidly-growing boys and girls, our first thought should always be of reflex mechanism, and it is only when a fruitless examination has shown our suspicions to be unfounded that we can venture to lay this explanation of the symptoms aside. We are then obliged to fall back upon plain antispasmodic treatment. But even in this case every attempt should be made to keep the nervous system at rest by avoidance of undue excitement, attention to the regularity of the bowels, and in the matter of diet a careful moderation, not only in red meats, but in acid and acid-making articles of food.

The kind of antispasmodic treatment to be employed is of importance. In the case of true epileptic attacks, excessive dosing with large quantities of bromide is, I believe, a plan of treatment which is better avoided. By such means, no doubt, we may lessen the frequency of the seizures for a time, but sedatives alone have little power to put an end to them altogether. These remedies are best used as aids to the action of nerve tonics; as a means of quieting undue nervous excitement, while the more slowly acting drugs are given time to produce their bracing effect. Of the latter I rely chiefly upon ergotine given in conjunction with strychnine. To be effectual the dose of ergotine must be pushed, and this may be done without fear of ill consequences; indeed, little effect can be expected until a good dose is reached. Beginning with 3 gr. every four hours given in conjunction with $\frac{1}{60}$ grain of strychnine, the dose may be increased gradually to 10 grains, and every evening at bedtime a draught containing 20 grains or more of bromide of sodium may be given with infusion of senna and aromatics. In the case of children the most satisfactory results often follow this method of treatment, especially if it be combined with a free country life in a healthy situation. The seaside, or, at any rate, the neighbourhood of the sea is to be preferred. It is wise to occupy the child's mind with light employments which interest and amuse; and if he can share these with young people of his own age, who may be trusted not to irritate or excite him, it will be distinctly to his advantage.

Another example of universal spasm which has to be treated with general nervine sedatives is chorea. In the management of this complaint it would be difficult to name a sedative which has not been employed with more or less success. I have obtained very striking results in obstinate cases with ergotine prescribed in large doses in conjunction with strychnine in the same way as recommended for epilepsy. Recently I have been giving chloretone in doses of 3 to 5 grains three times a day and have been well satisfied with the results. The remedy is one which decomposes very quickly and should, therefore, never be prescribed in combination with another drug. It is best given in "cachet" or dissolved in water sweetened with glycerine. A dose of 5 grains three times a day often causes some drowsiness. If this be so, the dose should be reduced to 2 or 3 grains after the first twenty-four hours.

But cases, such as the above, in which we are forced to rely solely upon the action of pure antispasmodic and tonic remedies for the control of the morbid phenomena form—in early life at any rate—but a small proportion of the examples of muscular spasm which are being continually brought under our notice. As a rule in the young the phenomena are purely reflex, the impulse being derived from irritative action at some point of the periphery. In all such cases the employment of general sedatives must be made subservient to the more pressing needs of local medication; but these remedies are still useful as aids to the treatment to reduce the general nervous susceptibility while special local measures are being employed to put an end to the primary cause of the nervous distress.

A Clinical Lecture

ON

AMAUROTIC FAMILY IDIOCY.

DELIVERED AT THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

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AMAUROTIC family idiocy is such a rare disease that it may seem hardly suitable for a lecture such as this, but I have chosen it because I happen to have met with four cases in recent years, and have one of them to show to-day; and also another of them, minutely investigated after death by Dr. Gordon Holmes and Mr. Herbert Parsons, stands as one of the most complete cases on record, for it was studied by recent neurological methods. This disease is, too, a very remarkable one, and, though you may never meet with a case, a short time given to its study can hardly fail to direct one's thoughts to some interesting points in the study of medicine.

I think, to begin with, it is interesting to trace the gradual recognition of the disease, because this illustrates how the specialist may sometimes point out to the general physician some fact in medicine which has been previously overlooked—just as the general physician may sometimes throw an entirely new light upon a subject which at first sight would seem to be quite a special one. In 1881 Mr. Waren Tay directed attention to peculiar macular

changes in the eyes of an infant. The title of his contribution was "Symmetrical Changes in the Region of the Yellow Spot in Each Eye of an Infant," and an excellent picture is given of the condition in this paper, which was published in the first volume of the *Transactions of the Ophthalmological Society*.

Knapp of New York in 1885 recorded a necropsy, and in 1887 Sachs (B.) of New York, who has done so much to elucidate this disease, described the changes in the brain in a case under the title of "Arrested Cerebral Development." In his later contributions he named the disease amaurotic family idiocy, and defined the chief clinical features. A valuable paper by Mr. E. C. Kingdon and Dr. Risien Russell was published in the *Royal Medical and Chirurgical Society's Transactions for 1897*, under the title of "Infantile Cerebral Degeneration with Symmetrical Changes at the Macula," and since that time various writers have contributed to the literature and further elucidated a disease which was, as you see, first recognized by an ophthalmic surgeon through one of the most striking of its symptoms. American physicians have in particular made valuable contributions to the literature, and among the more recent of them Spiller has been prominent. I believe that almost every case recorded which is undoubtedly an example of the disease has occurred in a Jewish child, although Mohre described a case in an American. In all my four cases both father and mother were Jews and not related. It is a disease of infancy, and shows itself in the first year, usually before the sixth month and frequently about the third, and it is almost invariably progressive, and ends fatally somewhere in the second or third year of life.

If it were not for its rarity it would be a disease of the utmost importance, and for those who have charge of numerous Jewish patients a knowledge of its chief features must be of some value.

It is interesting that my four cases have been sent to the hospital as cases of rickets, because they have shown loss of power and general feebleness. Extreme rickets, we know, does occur among the Jewish poor; but I think we must remember that the mothers generally nurse their children, and unless they are hopelessly poor I hesitate to hurry into the diagnosis of rickets with breast-fed children. As you will see, there are probably no two diseases more unlike than rickets and amaurotic family idiocy when well developed; but the error arises, no doubt, because the medical man is not acquainted with the rarer disease, and, finding himself driven into the corner where we all in turn crouch, falls back, for the need of a name, on that comprehensive and elastic one of "rickets."

The usual history that is given by the mother is to this effect: The child was healthy for some three months after birth, and during that time there had been no illness. Then she noticed that instead of going forward the child began to go back and the muscles of the back and neck were becoming feeble. The real gravity of these signs may not be realized for some months, and then the suspicion grows that the child cannot see well, and that the expression of its face is dull and the mental state feeble. As the disease progresses there is complete inability to raise the head or sit up, and even to turn when lying down, though sometimes the arms are thrown over the head in a wild, purposeless fashion. The limbs are also enfeebled, although at first no visible wasting will be apparent. A very interesting symptom present in all my cases, but I believe not invariable, is the survival of an acute sense of hearing, which, coupled with the general nervous degeneration, causes the infant to start at any sudden sound. The result is striking, for when the child is lying motionless it starts at a sharp sound, almost as if an electric shock had been applied. The sense of taste is preserved. There may sometimes be curious vermicular movements of the fingers and hands and a general drowsiness. In the last stage the limbs may become spastic, the muscles are wasted, and the reflexes increased.

Although some writers have stated that the temperature remains normal, this is not invariable, for in one of my cases the temperature rose shortly before death to 103°. There were screaming and head retraction, ptosis, and finally coma. Yet the anterior fontanelle was not distended, and no sign of meningitis was present after death.

There is, then, in this disease a slowly progressive paralysis, unmarked at first by any startling symptoms, but relentless in its steady advance unless death be accelerated by some intercurrent malady.

There is another very important feature in amaurotic family idiocy—its tendency to appear in several members of a family. The unfortunate mother of this child lost her first from the same cause, and will, I fear, surely lose this one also.

The history of Kingdon and Risien Russell's cases is, however, far more striking. The first child died of this disease; the second was healthy; the third died; the fourth was healthy; the fifth, sixth, and seventh all fell victims. The two healthy ones were a girl and boy respectively. More cases, however, have been reported in females than in males.

Ocular Changes.

The ocular changes are most interesting and important, and were, as I have already mentioned, the means of the discovery of the disease.

In most cases there is a primary optic atrophy, although Tay detected some neuritis in the earlier stage. I have never seen a case yet in which the ocular sign of atrophy has not been already developed and distinctive. Coupled with this atrophy there is in the position of the macula lutea, a white, hazy appearance of the retina, in the middle of which area there is a cherry-red spot of colour, closely resembling the appearance found in embolism of the central artery of the retina. In the case here to-day these signs are exceedingly well marked, and their presence enabled me to clinch a diagnosis which was at first not quite obvious.

The explanation of the changes is given briefly under the pathology of the disease, and they remain constant until death, with trifling modifications. The pupils are equal, and when the atrophy is well developed become widely dilated and inactive.

Pathology.

The pathology of this disease is at once interesting and obscure, and it is only in comparatively few cases that a complete investigation has been made.

Macroscopic changes in the brain are seldom evident. Sachs, however, described in two of his cases a low type of development of the cerebral convolutions, and in three cases the brain seemed unduly hard. In one of my cases there was the same unnatural hardness of the cerebral tissues. In other cases no change from the normal has been observed at all.

Microscopical changes were demonstrated by Sachs in 1887 and 1892, and in 1897 Dr. Risien Russell with Mr. Kingdon gave a full account of the changes they had observed in one case, and that account holds good at the present date, though it can be supplemented by additional observations which result from the use of other methods than staining with the aniline dyes. In 1906 Dr. Gordon Holmes and Mr. Herbert Parsons made a very careful and extensive investigation into one of my cases, which was published in detail in *Brain*, 1906, p. 180. This confirmed many of the previous observations, emphasized the statement of Spiller in 1905 that the disease of the nerve cells is general, and also elaborated the nature of these changes. I must refer you to that paper for the details, which are too intricate for this lecture.

The great fact to grasp in the pathological anatomy is the remarkable general and extreme disease of the nerve cells. It would appear to be a primary cell disease, and the changes in the fibres are apparently secondary. We may even go a step further and say that this disease is primarily a disease of the interfibrillar protoplasms of the cells, the changes in the neurofibrils being secondary.

The cell destruction may be most extensive; thus, in my case not a single normal cell was found by Dr. Holmes in any part of the central nervous system he examined, and the same was true also of the dorsal ganglia and ganglion cells of the retina. Spiller has found peripheral nerve changes. The tough consistence of the brain was the result of a secondary proliferation of the neuroglia.

It is also important to recognize that the disease of the nerve cells is not a result of inflammation, for there are no vascular signs of either acute or chronic inflammation.

The changes in the nerve cells are: Swelling of the cell body with frequently gross alteration in shape; disappearance of Nissl bodies, excentric position of nuclei, vacuolization of the protoplasm.

It may well be expected that the explanation of the cause of such a disease as this is beyond us. The very fact that, so far as I am aware, it is almost invariably met with in the Jews points at once, I think, to some very obscure disorder of metabolism.

The inevitable progress of the disease does not suggest an arrest of development but some active process. A bacteriological cause is improbable, for there are no positive facts in its favour, and my case was entirely negative, and the absence of vascular changes, the age, and racial nature of the disorder make such an explanation unlikely.

It does not appear from the microscopical evidence to be a pure atrophy, and I can get no further than the statement made by Holmes, Parsons, and myself in our paper that it is due "to some inherent bio-chemical property of the protoplasm of the cells." The only *post-mortem* examination I have seen showed no obvious changes in any of the viscera or internal glands which even suggested that they were at fault, but you will readily appreciate that a decisive statement on this point would be impossible with such a scanty experience. If there is some internal secretion at fault, at present no one, I believe, has discovered the gland that is to blame.

The explanation of the remarkable fundus changes comes next. Treacher Collins, Holden, Mohre, Shumway, and Mary Buchanan, and more recently H. Parsons, have written upon this point. There is profound disease of the ganglion cells in the retina, and at the fovea the disease may become so extreme that there is atrophy of the retinal tissue; and possibly this atrophy may even result in an actual destruction of the retina at this spot, as seemed to have occurred in my case. Whether this be so or not, you can imagine to yourselves the condition that results. We have the retina spread out over the vascular pink choroid, and where it is thinned by disease it is evident that this coloured background when illuminated by the ophthalmoscope will shine through with particular brightness and colour, and by contrast with the surrounding less diseased parts this greatly damaged area will appear as a bright cherry-red spot. The contrast is rendered all the greater because it would appear that the retina around the fovea may become oedematous, or, more probably, through swelling of the diseased cells, thickened, thus cutting off the colour of the choroid and forming around the cherry-red spot a whitish zone. The optic atrophy is due to the extensive disease of nerve cells and nerve fibres.

There are some remarkable cases on record which only in some details resemble amaurotic family idiocy.

Spiller, whose name I have already mentioned, found changes in the nervous system which he believed to be identical with those of amaurotic family idiocy in two children, one of which was 9 years of age, the other 8 years, who were not suffering clinically from this disease. These two children were mentally defective, but were not blind, and they would appear to be quite exceptional cases, which we must bear in mind when we dwell on the entity of amaurotic family idiocy. This is the more needful, because Falkenheim mentions a case of this disease in which the ocular signs were not present.

I have never myself recognized any case of an aberrant type, all the four I have published were classical in their onset, symptoms, and course. There is one case (Peterson's) which had survived to the age of 5 years, but in the absence of a necropsy, one is obliged to suspend decision as to its exact nature.

In this country I am not aware of a single case published which has not occurred in a Jewish child, but I believe that this is not an invariable rule, although there can be no doubt that it is to a great extent a racial disease, and far more so than the condition diabetes, which at once occurs to one as also more prevalent in the Hebrew race.

When confronted with a case of this kind, which is so mysterious in its nature and so hopeless in its prognosis, it is only natural to attempt to add any fact one can, that is of the least importance. Dr. F. Mott, from his laboratory, has done this in the case you see to-day, for he kindly had the blood and cerebro-spinal fluid examined by Dr. Candler by Wassermann's reaction, and has informed me that they both gave a negative result. This bears out so far the clinical experience of these cases that they are not a result of inherited syphilis, and is, I believe, a new observation on the disease.

Treatment.

It is quite useless for me to speak of the treatment. Russell and Kingdon tried numerous remedies of all kinds in vain in their series. I should not even follow Hirsch's suggestion that the mother should not nurse any child she might have in the future. One feels that this is but a faint hope. Further, should the child not show any sign of the disease, we must remember that not every member of a family need necessarily suffer whether nursed or not. Sachs, in fact, has already pointed out that it is of no avail.

I have tried one of the organic phosphorus compounds in this case, but I see no good result at all in consequence, and I think we need some much more subtle remedy than this.

Diagnoses.

You will readily understand that the great point in the diagnosis of these cases is really a knowledge of the disease. It is so rare that we never think of it, and perhaps have never heard of it, and then, of course, we must lose our bearings.

It has no resemblance at all to rickets, except in so far that the child is muscularly feeble, and I need not dwell on the extreme dissimilarity of the two diseases.

Cerebral diplegia is more likely to cause confusion, but the distinction is usually an easy one. For example, take such a case as this which I saw recently. A child of 7 months was brought for paralysis, which had been noticed by the parents soon after birth. The boy's head fell back from weakness of the cervical muscles, he snorted when asleep from weakness of the palate, and all four limbs were spastic, but there were no ocular changes. You will see that the spasticity was an original symptom, but it is not an early symptom in amaurotic family idiocy. Then, again, he was no worse than he was at 2 months of age; in fact, he was a little better. There was no blindness and no curious starting at a sudden noise. The reflexes were greatly exaggerated.

In another case there was double optic atrophy and consequent blindness, but the disease was not advancing; there was the same spasticity, and an entire absence of the macular changes of amaurotic family idiocy.

In some congenital syphilitic lesions of the brain there may be a progressive downhill course, or there may be a downhill course in which the steps are marked by sudden exacerbations of symptoms. In such cases epileptic attacks are common, and there may be other stigmata of congenital syphilis including choroidal changes, but not the characteristic ocular changes of amaurotic family idiocy. The history of stillbirths, miscarriages, or syphilis in the parents is often met with in such cases, but this is not the experience in the disease we are now considering.

Whether or not there are cases of progressive idiocy met with in asylums for children, which resemble this disease closely, I am not competent to state, but if they exist they must be very exceptional, I think, for even Spiller's cases did not show a clinical resemblance. Hydrocephalus can be at once excluded because that condition is not present in amaurotic family idiocy.

Post-basic meningitis, although it may give rise to blindness and paralysis, is acute in its onset and associated almost invariably from the first with such symptoms as fever, retraction of the head, convulsions, and vomiting. There are no macular changes and the cerebro-spinal fluid obtained by lumbar puncture will at once differentiate the disease.

Possibly a cerebral tumour in an infant might show some resemblance, but I have never myself met with any case in the least resembling one of these.

Cretinism could not possibly be a cause of difficulty.

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AN EPIDEMIC OF TINEA CRURIS.

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RINGWORM of the scalp and body occurring in epidemic form in schools is familiar, but ringworm of the groin, fork, and axilla is not of such common occurrence except in tropical climates; its appearance in epidemic form during the last three years at the universities and in our public schools is my reason for publishing the following notes.

Tinea cruris has also been called tinea marginata or eczema marginatum. In the majority of cases I have seen the lesion starts in the fork or inner surface of the thigh, where it is touched by the scrotum. A red patch, looking like an area of chafing, appears, and rapidly spreads down the inner side of the thigh and backwards towards or behind the anus. The spreading edge is raised, dry, scaly, or papular, whilst the portion within the ring is moist and eczematous. Gradually extending from the margin, the lesion in the lower extremity may almost reach the knee, and in the axilla may reach the level of the nipple. There does not appear to be any tendency to a spontaneous return to the normal on the part of the skin within the growing margin. The hairs are not affected and do not fall out. Beyond slight itching, there are no subjective symptoms. On the trunk and limbs of infected persons there may often be found patches which can in no way be distinguished from ordinary ringworm of the body (tinea circinata).

On March 8th, 1907, a boy presented himself, suffering from a condition I diagnosed as eczema intertrigo affecting the scrotum and inner side of the right thigh. At the end of the term, about the first week in April, the condition showed no improvement, and he went under the care of his doctor at home, Dr. McLannahan, of Stonehouse, who very kindly wrote to me, saying that he regarded the case as one of tinea marginata, a condition he had met with amongst soldiers and amongst stokers in the P. and O. service. This boy was apparently well by April 21st, and he returned to school a few days later, and had no recurrence. On May 31st, 1907, a second boy from the same house was seen with tinea marginata of the axilla. An undress parade of the boys in the house led to the discovery of 9 other cases, 2 having the disease in the axilla, and the remaining 7 in the groin or fork. A second inspection of the house a month later led to the detection of 2 more cases; the fourteenth case appeared twenty-four days later, and the 2 last cases were found thirteen and eighteen days after this. In all, there were 16 cases, all in one house of about forty-five boys.

Clinically, there was little to note about the cases. In a few, which were of old standing, the rash extended as low as the lower third of the thigh and backward behind the anus. Not uncommonly a few spots, the size of a threepenny-bit, were found on the thighs, calves, trunk, and more rarely on the arms. These isolated spots were drier and more scaly than the patches in the groin or axilla, and readily yielded to treatment. The rings gave rise to no symptoms beyond slight irritation. The average length of time under treatment was five weeks. Three cases recurred, two after an interval of six weeks, and one after the lapse of four months.

Scrapings from the growing edge of some of these cases were examined microscopically, both by myself and by a local bacteriologist. In all, a large-spored ringworm fungus was found.

Treatment was alike in all cases. The superficial epidermis was removed first, and then an antiseptic ointment was applied. To remove the epidermis I employed a solution of 40 grains of iodine with 20 grains of potassium iodide in an ounce of methylated spirit. Two applications were generally sufficient; then the parts were treated morning and evening with an ointment containing half a drachm of precipitated sulphur and half a drachm of ammoniated mercury in an ounce of lanolin. A few boys were treated according to a suggestion of Dr. McLannahan: the affected parts were painted every other day with a camel-hair brush soaked in ol. terebinth. rect., and the following ointment rubbed in every night: Sulph. precip. ʒss, hydrarg. amm. ʒss, acid. salicyl. gr. x, lanolin and vaseline āā ʒiv. In both cases the applications sometimes gave rise to severe smarting, but this was of short duration, and relieved by smearing with vaseline. Cases seen early and treated by this method were well in three weeks; old-standing cases took, of course, longer.

The factors common to all the boys who suffered in the epidemic were as follows: With one exception, they were all senior boys, members of the First Fifteen, using the same lavatory and bathroom. They did not all belong to the same dormitory, and there was no suspicion that they wore each other's football or running togs; indeed, one boy who suffered was not allowed either to run or play football on account of a chronic cardiac lesion.

The precautions taken to prevent the spread of the infection were as follows: All the boys in the infected house were stripped and inspected about every three weeks. All who were detected with the rash were made to sleep in the same dormitory, which was reserved for this purpose; they also had the exclusive use of a separate changing and bath room and water-closet. For baths and ordinary washing purposes Parke Davis's germicidal soap was used. All towels from the infected changing room were disinfected, and also the underclothing and running kit. The walls of the changing room and lavatory were washed down with disinfectant at the termination of the outbreak. The infected boys were not withdrawn from school work nor from the common dining-room. When the rash in the fork was profuse they were not permitted to join in the school runs.

These precautions were entirely successful; no other house was infected, and no cases have appeared during the subsequent fourteen months. During the period covered by this epidemic I saw in other schools several cases of body ringworm (tinea circinata); 2 isolated cases occurred in a boys' school, 1 in a girls' school, and 7 in a school for junior boys. None of these cases assumed the type of tinea cruris.

In my own mind there is no doubt that the outbreak was caused by the common use of the hot bath, or by the boys using each other's towels. Probably the growth of the parasite was encouraged by the moist, hot atmosphere of the bathroom, while the vigorous rubbing which boys give to the forks, groins, and axillae decided the points of inoculation. It has sometimes been thought that infection is carried in clothing, and that chairs and water-closet seats may harbour the parasite, but in the outbreak under consideration these factors could be eliminated.

Tinea cruris resembles tinea circinata in that it attacks patients after the period of puberty; but it is probable that there are two distinct parasites causing these conditions, for in tinea cruris the hairs are never attacked. The parasite of tinea cruris shows a larger spore and a freer growth of mycelium than tinea megalosporon; it is also very much easier to find in scrapings taken from the growing edge of a ring. These differences may be due only to the site in which the fungus has grown. In order to settle this point it is desirable that scrapings should be taken and growth obtained on Sabouraud's medium.

THE annual general meeting of the Society for Training Teachers of the Deaf and for the diffusion of the German (pure oral) system will be held at 33, Cavendish Square, W., on Wednesday, May 26th. Sir Melvill Beachcroft, Chairman of the London County Council, will take the chair at 3 p.m.

A CASE OF LANDRY'S (ACUTE ASCENDING) PARALYSIS: RECOVERY.*

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For the following notes I am indebted to Drs. J. R. Edward and W. M. Sadler, house-physician and assistant house-physician, Nottingham General Hospital:

The patient, a collier, aged 23, employed on the "pit bank," was admitted to the Nottingham General Hospital on January 20th, 1908, having been laid up about twelve days.

Previous History.

He had been addicted to an occasional indulgence in alcohol, but was not a constant "soaker." There was no history of syphilis, diphtheria, or lead poisoning. Some months back he had gonorrhoea. He had never been abroad. The family history was unimportant.

Present Illness.

A few days before the attack the patient had a drinking bout, got wet through, and sat for some time in his wet clothes. After this he complained of lassitude and general muscular aching.

On January 8th he felt "starved" and sick, and vomited slightly. The next day he had a numb feeling under the nails of both hands, as if the fingers had gone to sleep. By night the arms were involved as far as the elbows. Next day the arms and feet felt very cold and numb, and there was marked muscular weakness of all four limbs and of the trunk. Face not affected. He just managed to sit up once in bed, but could not dress himself or hold anything in the hands. The limbs twitched a good deal and ached. Drowsy in the day, wakeful at night. Appetite good. Bowels were moved by medicine. There was no loss of control over the bladder, except on one occasion, when he was being lifted on to a stretcher. About a week after the onset the eyelids and mouth became affected. He could only just see through the chink left by the dropped lids. No headache or other pain beyond aching in the limbs. Three days after the onset he began to be troubled with cough and phlegm.

Condition on January 23rd, 1908.

He is a man of healthy appearance, but is perhaps a little cyanosed. Lies on back. Troubled with weak, ineffectual cough. Mouth dry (full doses of belladonna were being given). Mucous membranes of normal colour. Tongue moist, red, a little furred, gums normal. Pulse 100, moderate tension, regular. Respirations 28. Temperature normal. Double ptosis of upper lids, which cannot be raised above $\frac{1}{8}$ in. Slight mucopurulent discharge from conjunctiva. Pupils equal, react to light and accommodation. Internal and external recti on both sides markedly weak. No nystagmus. Double weakness of facial nerve, seen on trying to smile. Palate moves well. Tongue protruded straight. *Upper limbs:* No muscular wasting, but almost complete symmetrical paralysis. All muscles respond to faradism, except flexors of first and second fingers of right hand. No reaction of degeneration. *Lower limbs:* Knee-jerks absent. No ankle clonus or plantar reflex. No wasting of muscles, but great weakness. Some slight movements can be performed, others not at all. All muscles react to faradism and galvanism. No reaction of degeneration. *Sensation:* Everywhere normal. *Trunk:* The intercostal muscles are paralysed and respiration is carried on by the diaphragm. Superficial reflexes absent. The recti abdominis appear almost completely paralysed and the abdominal wall is lax. *Speech* is blurred owing to weakness of the facial muscles; no hoarseness. *Heart:* Sounds normal, apex beat in fourth interspace just external to the nipple. *Lungs:* Slight dullness at bases, but no definite change in breath sounds. *Mental condition:* Bright when he is spoken to, drowsy at other times.

April 23rd.—There is now fair movement of the ribs in inspiration in respect both of expansion and elevation. The umbilicus moves upwards when he attempts to contract the recti. Facial and ocular muscles now normal. Great wasting of all small hand muscles, also forearm muscles, extensors more especially. Biceps wasted, but can be voluntarily contracted. All other muscles of upper arm are wasted and powerless. Sensation normal. *Lower limb:* Cutaneous sensation normal. Muscles tender on pressure or passive movement. Great muscular wasting in thigh, leg, and foot, with plantar flexion. He can slightly bend knee, move toes, and flex ankle. These movements cause pain. Slight glossiness of skin of foot. There is a general tendency to sweating.

July 23rd (six months after admission).—There has been considerable improvement in the arms, which he can raise so as to get hold of the bar at the bed-head. Can sit in a wheel-chair, but cannot propel himself. Patient discharged from hospital.

February 26th, 1909 (seven months after discharge from hospital).—Looks plump and well. The shoulder and arm muscles are in good condition, movements of shoulder and elbow well performed. The extensors of the forearms and the small hand muscles are atrophied, more so on the right side. There is permanent flexion of the two distal phalanges of the fingers, the proximal one being extended. He can propel himself in a wheel-chair, but can do no useful manual work. There is wasting of extensors of the leg, consequently there is extreme foot-drop and plantar flexion of the toes. Knee-jerks not obtained. Can flex and extend the knee to some extent. Muscles moving the hip are very weak, and he cannot stand even when supported on each side.

Treatment.

He was at first given liq. strychnin. mv, with tinct. belladon. mx, every two hours. Both these drugs are respiratory stimulants, and the only chance of recovery appeared to be in stimulating the respiratory centre. The belladonna was given also with the object of checking secretion into the bronchial tubes, where it tended to accumulate owing to lack of expulsive power. The belladonna after a few days' use caused a little noisy delirium at night, which was treated by a bromide and chloral draught. After the first ten days the strychnine alone was given. On March 2nd sodium salicylate was given on account of the muscular pains. To this bromide of potassium and hyoscyamus were afterwards added. Then strychnine was returned to. Massage and galvanism were regularly given during the latter part of the patient's stay, but were not well borne on account of the muscular tenderness.

The group of symptoms known as Landry's paralysis has been known since 1859, when the disease was first described by the observer whose name it bears. It is more correct to speak of a group of symptoms than of a disease, because it is quite possible that the "symptom-complex" in different cases has a different causation and variable pathological basis. By Landry's paralysis we understand an illness usually ushered in by sensory symptoms such as tingling, formication, etc., and then characterized by progressive loss of muscular power, commencing usually in the feet, involving in turn the legs, thighs, pelvic muscles, abdominal wall, arm muscles, respiration, deglutition, facial muscles, etc. There may be considerable loss of sensation, but more commonly this is absent, or confined to slight blunting at the tips of the fingers and toes. Most cases end fatally, especially when the respiration is affected, death occurring usually about the end of the first week, if not earlier, or it may be deferred three or four weeks.[1] In at least two respects this case is remarkable. First, it is distinctly stated in the notes that the arms were affected before the legs. This occurrence certainly runs counter to the commonly accepted notion that the paralysis invariably commences in the legs and ascends the body segment by segment, until its progress is either stayed, or life comes to an end by reason of the importance of the structures involved. But we are told on the authority of the late Dr. Ross[2] that Landry himself stated that the malady might commence in either pair of limbs, and that the march of the paralysis might be sometimes described as "centripetal" rather than "ascending." Occasionally both the arm muscles and those supplied by the bulbar nerves have been affected before the legs. In the second place, this case is remarkable inasmuch as, notwithstanding the almost complete paralysis, the patient recovered. When I first saw him he lay almost motionless, breathing rapidly, and of somewhat dusky appearance. When spoken to, he threw his head slightly backwards to enable him to see through the fissure left by his drooping lids. In fact, he seemed to be hanging on to life by a thread. Every time I visited the hospital I expected to hear of his death. When asked how he was he always said, "All right," and probably his calmness and pluck had much to do with his recovery. It is impossible to say why certain muscles and nerves were spared and others affected. The muscles of the legs, arms, and trunk, including intercostals, were absolutely powerless. The muscles supplied by the brachial plexus were all involved, yet the phrenics which arise from the cord immediately above were spared. The pneumogastrics, glosso-pharyngeals, and hypoglossals seem to have escaped, while the muscles supplied by the third, sixth, and seventh were affected. The temperature at first was normal. About the sixth week it reached 99.4° in the evening. This, practically afebrile course, conforms to the usual type.

Exposure to cold and excess in alcohol are well-recognized causes of Landry's paralysis, and both of these co-operated in the etiology of the case before us. It has also occurred during convalescence from small-pox, typhoid, influenza, measles, and diphtheria. It has occasionally supervened in connexion with the puerperal state, syphilis, septicaemia, and phthisis.[3] It is three times as common in men as women.

As regards diagnosis, there is room for doubt whether the lesions in this case were in the spinal cord or in the

* Read before the Nottingham Medico-Chirurgical Society.

peripheral nerves. At any rate, it was not a case of ascending myelitis leading to rapid and extensive softening of the cord. This is shown by the preservation of faradic excitability, of the functions of the bladder and rectum, and absence of tendency to bedsores, or of anaesthesia. A certain mystery has always hung over Landry's paralysis because it has so frequently happened that no morbid changes in the nervous system have been discovered after death. The disease was capable of abolishing function and of destroying life, without leaving behind any lesion or demonstrable alteration of tissue to indicate in what manner those results had been brought about. There are doubtless cases in which the nerves and spinal cord have been examined by modern methods and no pathological changes have been found. In rapidly fatal cases the action of the poison on the nervous tissues may be sufficient to cause death before characteristic changes of structure have had time to develop. On the other hand, many of the earlier cases occurred before it was customary to examine the peripheral nerves, so it is probable lesions in some cases have been overlooked. When inflammation involves all the elements of a mixed nerve it is usual to find that both motion and sensation are affected. In the case before us we may regard the lesion as principally affecting the whole system of lower motor neurons. The axis cylinders of the motor nerves are outgrowths of the ganglion cells of the spinal cord, medulla, and pons. The chief stress of the destructive process would be found in some cases in the peripheral nerves, and doubtless most often there because of their distance from the centre, and in others in the ganglion cells themselves. And here we can see an explanation why motor power has been recovered in some parts of the body and not in others. So long as the nerve cells themselves are not destroyed, there is possibility of regeneration of axis cylinders and of recovery of muscular tone and motor power, while if the cells themselves undergo degeneration there is permanent muscular atrophy and motor paralysis. This has occurred notably in the cell groups innervating the extensors of the forearm and toes and the small hand muscles. Although the morbid process has exercised a selective action on the motor fibres of mixed nerves, it is probable there has also been interstitial neuritis, which by pressure would cause irritation of sensory fibres. In this manner the tenderness and pain in many of the muscles can be accounted for. Neither hyperaesthesia or anaesthesia of the skin occurred, which appears to show that nerves containing sensory fibres only were only slightly affected, if at all.

Dr. Michell Clarke, in an interesting article in the BRITISH MEDICAL JOURNAL for September 12th, 1908, would limit the term "Landry's paralysis" to cases in which the lesion is confined to the anterior cornual cells, degenerative changes being nowadays demonstrated by Nissl's method, but which would have been passed over by earlier pathologists, thus giving rise to the notion that Landry's paralysis caused no morbid changes of tissue. This proposition apparently assumes that true Landry's paralysis is always fatal, for the morbid anatomy of a patient who recovers must always be more or less a matter of speculation. In the clinical sense I think the case I have related is sufficiently near the type of Landry's paralysis to be included under that name. Dr. Clarke goes on to describe a case of ascending paralysis due to toxic polyneuritis. There was great muscular wasting, the reaction of degeneration was present, and the patient died after an illness of about three months. At the *post-mortem* examination the peripheral nerves showed a very advanced degree of neuritis. But this was not all, for many anterior horn cells, especially in the cervical and lumbar enlargements, showed degenerative changes, such as disappearance of the Nissl bodies, vacuolation, and disappearance of the nucleus.

The physical and chemical properties of the poison causing acute ascending paralysis probably vary, and its nature in different cases is but little known. In one published case[4] micrococci have been found in the ganglion cells of the cord. Whatever the nature of the poison, it probably circulates in the blood like alcohol and the diphtheritic poison, and exercises a selective action on the lower motor neurons, the peripheral portion of which frequently suffers most. Another example of the selective action of a poison is that of the late effect of the syphilitic poison on the sensory protoneurons or on the pyramidal cells of the cortex cerebri, producing the diseases known as tabes dorsalis and general paralysis respectively. The notion that Landry's paralysis is associated with no morbid tissue changes of permanent character can no longer be maintained, or that no muscular wasting occurs in cases that recover. This question was fully inquired into by the late Dr. Ross, and he "clearly showed that many cases have been reported which in the early stages were clinically indistinguishable from cases of rapidly fatal ascending paralysis, in which, when convalescence was protracted, some of the muscles became atrophied, and gave partial or complete reactions of degeneration to electrical tests,"[5] *main en griffe*, and double ankle-drop being not uncommon distortions.

REFERENCES.

[1] For an account of a rapidly fatal case see BRITISH MEDICAL JOURNAL, February 27th, 1909. [2] *Allbutt's System*, first edition, vol. vi, p. 701. [3] Allbutt, op. cit., p. 697-8. [4] Allbutt, op. cit., p. 702. [5] Allbutt, op. cit, p. 700.

ON THE USE OF CERTAIN NEW CHEMICAL TESTS IN THE DIAGNOSIS OF GENERAL PARALYSIS AND TABES.

BY

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THE diagnosis of general paralysis of the insane is for two reasons a more important matter than the diagnosis of most forms of insanity. On the one hand, thanks to the clinical observations of Pilcz, Kraepelin, and a host of other workers, with the pathological researches of Nissl and Alzheimer, we have a clearer picture and more exact knowledge of the course and nature of the disease than about almost any other psychosis, so that we can foretell what events are likely to occur in it, and take measures to guard against them. On the other hand, the prognosis is more fatal and the lethal termination more rapidly reached than in any other form of insanity, so that it is important to recognize the condition as soon as possible, and to get the patient's affairs arranged on the basis of that knowledge. Although in a pronounced case the clinical picture is one of the sharpest in the whole of medicine, yet in an early or non-typical case the difficulties in diagnosis are often exceedingly great. So much is this the case, that it is found in asylum practice that the majority of the patients are admitted either with an erroneous diagnosis, or else comparatively late in the course of the disease. Hence the additions to our knowledge that of late years have accrued from a study of the cerebro-spinal fluid in the disease have been welcome and valuable aids to the practitioner. These newer laboratory methods of course can never replace accurate observation of the well-known physical signs of the condition, any more than Widal's test has replaced the employment of physical examination in the case of typhoid fever, but a knowledge of them is of the utmost importance when we have to deal with obscure and doubtful cases.

Before detailing some personal researches it will be well to review very briefly present knowledge concerning the cerebro-spinal fluid in general paralysis, and this is best done, perhaps, by mentioning the various points in the chronological order of their discovery.

The first step in this connexion, and still one of the most important, was the discovery, made in 1900 by Ravault, Widal, and Sicard, that lymphocytosis in the cerebro-spinal fluid is one of the most constant accompaniments of both general paralysis and tabes. Many forms of cells are found, the most significant being large mononuclear lymphocytes and plasma cells. When in a non-febrile malady the lymphocytosis is very pronounced, then it may be regarded as practically pathognomonic of general paralysis. The cell increase is greater at the onset of the disease—a fact that obviously enhances its value in diagnosis.

A year later the discovery was made by Achard, Loefer, and Lanbry that considerable quantities of proteid are to be found in the cerebro-spinal fluid in general paralysis and, to a less extent, in tabes. As the present paper is chiefly concerned with this question, consideration of it may be conveniently postponed for the moment, and it will suffice here to mention the well-established facts that in normal cerebro-spinal fluid the quantity of proteid is minimal, that in the diseases in question the increase is mainly an increase in globulin, and that this increase is not always parallel with the degree of lymphocytosis, tending on the whole to develop later than this phenomenon.

The next discovery was the startling one made by Wassermann in 1906, that the cerebro-spinal fluid in general paralysis contained substances which, when combined with the syphilitic virus, have the power of inhibiting haemolysis. It will be remembered that in 1900 Bordet demonstrated that in various processes, of which haemolysis may be taken as a type, three bodies are essential components. These are, first, the antigen, or substance that is being destroyed—bacterium, blood cell, etc., as the case may be; secondly, a non-specific substance, or complement, found in all blood serums; and, thirdly, a specific substance, or amboceptor, found only in the serum of an individual that has been previously injected with the corresponding antigen—the amboceptor being thus evoked as a response to the foreign body. It follows that if two of these three bodies are present in a fluid and cytolysis does not take place, it must be due to the absence of the third; thus, if the antigen is not dissolved on being added to its corresponding amboceptor, the complement must be missing. In this way we can test for the presence or absence of complement. Now Wassermann found that syphilitic virus obtained from a fetal liver in which spirochaetes had been demonstrated, when in the presence of the cerebro-spinal fluid of a paralytic, made a combination with it and the complement present in any blood serum. This complement was thus taken up or fixed, and was no longer free to cause haemolysis when added to red blood cells and haemolysin in the way just mentioned. For this test he first incubates for an hour the syphilitic liver emulsion with the suspected cerebro-spinal fluid and the complement-containing serum of a guinea-pig; he then adds the mixture to an emulsion of washed red blood corpuscles of a sheep and some serum of a rabbit that has been several times injected with sheep's blood. If the blood cells dissolve—that is, if haemolysis or laking takes place—then the complement must have been free to do it, and could not have been fixed by the preliminary incubation. Wassermann maintains that this is due to the absence of any syphilitic antibody or amboceptor in the cerebro-spinal fluid. On the other hand, if laking does not take place, then the complement must have been previously fixed by the combination of the syphilitic antigen from the liver and syphilitic antibody in the cerebro-spinal fluid.

While Wassermann's observations have received the widest confirmation, his interpretation of the phenomenon has met with serious criticism, and is to-day practically discredited. It is quite true that the reaction just described is positive in over 95 per cent. of cases of parasyphilis, and negative in other diseases, so that beyond doubt there is some substance in the cerebro-spinal fluid which when combined with syphilitic virus has the power of fixing complement and thus inhibiting haemolysis. But the nature of this substance is a far more disputable matter. That it is not a specific syphilitic antibody seems to be certain from the observations made, first by Weil and Braun, that it shows the same power of inhibiting haemolysis when combined with other substances than syphilitic virus—for instance, lecithin. It is now known that the place of the syphilitic antigen can be taken by a number of substances, including lecithin, bile salts, brain emulsion, normal liver emulsion, etc.; and Benecke has recently brought evidence to show that the efficacy of the syphilitic liver in Wassermann's experiments is due to the presence in large quantities of a peculiar soap pellicle that surrounds the fat droplets characteristic of that lesion.*

* This subject was fully discussed by Dr. Mott in the second of the course of lectures on Syphilis of the Nervous System, published in the JOURNAL of February 20th.—ED. B. M. J.

Leaving, however, the theoretic aspect of the question, we have to note that all workers at the subject—notably Plaut, Morgenroth and Stertz, Marie, Levaditi, Yamanouchi, Weil, Eichelberg, and Neubauer—are unanimous as to the high practical value of Wassermann's discovery. It may be said at once that it is the most certain sign of general paralysis we at present possess. Its only disadvantage is the complexity of its application, and before it can be of much value in practice it will have to be considerably simplified.

Two other methods may be briefly mentioned. In 1907 Fornet and Schereschewsky stated that the serum of a luetic patient gives a specific precipitate with the serum of a paralytic. This observation has been received with much scepticism, and Plaut, who is perhaps the most reliable authority on the subject, says that this precipitate is just as common with normal serum. In 1908, Porges and Meier showed that the cerebro-spinal fluid of paralytics causes a heavy precipitate when added to the lecithin emulsion. This is of interest when one remembers the important part played by lecithin in the Wassermann reaction.

The theoretic interest that the increase in globulin has resides in the fact that most authorities agree in attributing to it the origin of the substance active in the Wassermann reaction. The trend of opinion is towards regarding this as resembling choline and nucleo-proteid in being katabolic products produced in the course of the disease. The relation between globulin and the substance that gives the Wassermann reaction becomes therefore a matter of great interest, and the phenomenon of globulin increase receives an accession of both practical and theoretical importance from these considerations.

Now, the experience of the past eight years has amply confirmed the fact of globulin increase in general paralysis and its very great value in diagnosis, and the object of the present communication is to consider two new methods for the precise observation of this increase, together with the results of our experience with these methods. The first of them was described some five months ago by Noguchi of New York; the second has not hitherto been described.

There are, of course, several methods in general use for the separation of globulin from albumen, but all of these leave much to be desired in reliability and delicacy. For the cerebro-spinal fluid the following are those that have been most employed. Guillain recommends that the fluid be saturated with magnesium sulphate and then heated; a precipitate indicates the presence of globulin. Nissl, Henkel, Nonne, and Apelt, who have all published extensive monographs on this subject, add to the fluid an equal quantity of a saturated ammonium sulphate solution. Cimbal adds a saturated zinc sulphate solution. In our experience, however, these methods sometimes fail even after twelve hours to give a precipitate with fluids that at once give one in the two tests next to be described.

We shall consider first the technique of these tests and then the results obtained.

Whichever test be applied, it is essential first of all to be sure that no blood or pus has contaminated the fluid to be examined; results are of little value, even in cases in which there was a very high lymphocyte count, on account of the secondarily derived globulin. The test may be carried out at any date after the puncture, provided only that the fluid be clear.

The Noguchi reaction consists in the addition of 0.5 c.cm. solution of 10 per cent. butyric acid in normal sodium chloride solution to 0.1 c.cm. of the fluid to be examined, the application of heat, subsequent addition of 0.1 c.cm. of 4 per cent. sodium hydrate solution, with a further application of heat. The test tube should be read within three hours. A distinct opalescence is frequently found to occur even with the normal, but in cases of general paralysis and tabes a characteristic precipitate of a peculiar flocculent character forms. The flocculi tend gradually to fall, so that after twenty-four hours at the latest the bottom of the tube is occupied with a fairly bulky precipitate, whilst the supernatant fluid is clear. In performing this test care must be taken to ensure the absolute purity of the butyric acid. This was evidenced during the experiments by the following occurrence. We had finished the brand of butyric acid obtained from Dr. Makins, of New York,

that had been found to be satisfactory, and on December 7th tried a new brand in 6 cases. To our surprise all of these gave negative results, a finding that was shown, by comparison with some that Dr. Noguchi kindly placed at our disposal, to be due to impure butyric acid.

The second test referred to is as follows: 2 c.cm. of a saturated solution of ammonium sulphate are placed in a test tube, and 1 c.cm. of the cerebro-spinal fluid is gently run on to the surface in the way done in the Heller nitric test for albumen. The formation of a ring at the junction of the two liquids constitutes a positive reaction. The ring is clear-cut, thin, greyish-white, and has the thickness of a thin piece of paper. It should form within three minutes, and within half an hour it may be observed that the surface of the ring shows a delicate mesh appearance resembling a fine cobweb. Indirect illumination must be used, or it may escape detection. For this purpose we have constructed a black-lined box into which the test tube can be inserted and viewed at right angles to an electric bulb which is fixed within the box a few inches away. In applying the test it is essential to see, first, that the ammonium sulphate is pure, so that the solution is neutral and not acid; and, secondly, that the solution is quite saturated, which is best ensured by the use of heat in its manufacture.

We come now to the question of results. Up to the present we have examined only 27 cases, but the paucity of our material is partly compensated for by the uniformity of our findings, which has encouraged us to believe that the tests in question will prove to be of considerable utility.

The Noguchi test was applied in 15 syphilitic cases and 12 non-syphilitic. It was negative in all of the latter except in 1 case of tuberculous meningitis. Among the negative cases were 5 of dementia praecox and 4 of tumor cerebri, conditions which are frequently very difficult to distinguish from general paralysis. Among the 15 syphilitic cases were 12 untreated and 3 treated cases. None of the latter gave a positive reaction, while all of the former did so. The 12 positive cases comprised 3 of tabes, 5 of general paralysis, 1 of tertiary syphilis, and 3 of syphilis of the nervous system. The test was thus positive without exception in all cases of syphilis or parasyphilis that had not had recent treatment, and negative in all other cases examined.

The effect of treatment was shown not only by the non-reaction of the cases under treatment, but also in the disappearance of the reaction seventeen days after initiating treatment in a case that had previously shown a marked positive reaction. It is known that there is an excess of proteid in the cerebro-spinal fluid in no chronic disease of the nervous system apart from syphilis, and that agrees with our findings. In cases of acute infection, on the other hand, there is often an excess of proteid present, whatever be the nature of the infection. This was so, for instance, in the only case of this kind—one of tuberculous meningitis—that we have been able to examine.

The ammonium sulphate ring test was applied in all of the above cases except two of tabes. The results agreed absolutely with those obtained by the Noguchi test, being positive whenever this was positive and negative whenever this was negative, so that the list of cases need not be repeated. The amount of proteid present in normal cerebro-spinal fluid is insufficient to give a ring with ammonium sulphate, though it commonly gives one with pure nitric acid. In general paralysis the amount is increased tenfold, and far exceeds that reached in any other disease, except of course acute meningitis. In the differentiation of general paralysis from syphilis with no nervous manifestation, we would rely not on the mere excess of proteid in the former, for that occurs in both conditions, but upon the striking *extent* of the excess. This can be roughly estimated with the ammonium sulphate ring test in three ways—by noting first the density of the ring, secondly the time that elapses before its appearance, and thirdly by the dilution with which it appears. The last point has greatly interested us, particularly, however, in connexion with the globulins of the blood serum in syphilis, a matter with which we are not here concerned. Our observations on the point are as yet incomplete, but it would seem that we have in the dilution test a means of readily estimating the amount of globulin present, and therefore the degree of certainty of the diagnosis. We have several times, for instance, obtained a positive reaction in fifteen minutes after diluting the cerebro-spinal fluid eightfold, a phenomenon that certainly never occurs in the normal.

To sum up, we consider that we have in the Noguchi reaction and in the ammonium sulphate ring test two new methods of considerable value for readily recognizing an excess of globulin in the cerebro-spinal fluid, and thus for determining the presence of some parasyphilitic affection of the nervous system.

TREATMENT OF FACIAL PARALYSIS DUE TO MASTOID DISEASE OR TO THE MASTOID OPERATION.

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IN the performance of a series of mastoid operations one is certain sooner or later to have the misfortune to divide the facial nerve during the course of the operation—it has occurred to me three times in over one hundred operations—as it may be found either completely exposed or surrounded by granulations, the curetting of which may completely sever it; or the paralysis may be present before operation, due to destruction of the nerve by the diseased process.

As far as I am aware, the treatment hitherto adopted has been facio-spinal accessory, or facio-hypoglossal anastomosis, the latter being the favourite. I have had two of the latter, and both were successful as far as recovery of the facial muscles was concerned; but the resulting disfiguring scar was objectionable, and the thought occurred to me of trying to join the two ends of the divided nerve in the course of the aqueduct of Fallopius at the site of injury. The following is a short summary of a case which was shown, together with one of my facio-hypoglossal cases, for the purpose of comparison at a meeting of the Stourbridge and District Medical Society on February 18th last:

John P., aged 5, admitted to the Walsall and District Hospital on May 12th, 1908, with chronic middle-ear suppuration and symptoms of cerebral irritation. The mastoid was opened on May 13th, and was found to be extensively diseased, a large part of the outer wall of the lateral sinus being covered with foul granulations. In following out the diseased bone the facial nerve was divided and recognized as such at the time of the operation, and upon recovery from anaesthesia the whole of the side of the face was completely paralysed. The operation was finished in the ordinary way, the wound being stitched up at the back, and the external meatus being thrown into the general cavity. The idea of end-to-end anastomosis occurred to me, and upon the second day after operation the child was again anaesthetized, the wound at the back reopened, the severed aqueduct exposed, and the proximal and distal ends defined, the distance between them being about from ⅛ to ¼ in. As a scaffolding for the regenerating nerve silkworm gut was used, as it was thought it would better resist the phagocytic action of the tissues, and by its rigidity be more easily introduced into position, and retained there during subsequent dressings. A piece ½ in. longer than the interval between the two openings in the bone was used, ¼ in. being inserted into each end of the bony canal. The case was dressed daily for a period of one month through the wound at the back, which was not again closed, mainly for convenience in dressing, but also for better drainage. The whole of the area of the anastomosis was carefully covered at each dressing with gutta-percha tissue to prevent any disturbance to the underlying silkworm gut, until the latter became covered with granulations. The battery was used from the first, but no movement of any kind could be produced by the patient for three months, when slight movements of the alae nasi of the affected side were observed upon forced sniffing, the other facial muscles afterwards gradually coming into use. The child was discharged on September 11th, with the wound epidermized and clean, a small fistula remaining behind the ear leading into the operation cavity. The boy has now recovered his normal expression when at rest, and when his facial muscles are thrown into action it is difficult to tell that there has been any facial paralysis at all.

I think I can lay claim to originality in this method of treatment, but I bring it forward for two reasons: first, because of the avoidance of an unsightly scar, which is no small matter in the case of a girl, and which is inevitable in the facio-hypoglossal method; and, secondly, because—as far as my experience of the latter operation goes—of the longer period of time taken for recovery of

the paralysed muscles, which, I think, is due to the fact that for union with the hypoglossal one has to wait until the operated ear has become quite clean and healed, as asepsis is here essential to success, whereas in the method above described repair of the nerve may commence at once.

The operation, also, is no more difficult than the facio-hypoglossal anastomosis; indeed, I believe it to be the easier of the two, for the recognition of the atrophied facial has been to me a matter of considerable trouble, and the difficulty of keeping the operated surface aseptic during the operation is also very great, the anaesthetist being necessarily more or less in the way the whole time the search is being made. The dissection of the hypoglossal nerve, however, is certainly easy, but the greater ease with which the already more or less exposed bony canal in the mastoid—much larger than the atrophied nerve in the substance of the parotid—can be recognized renders this procedure the simpler of the two.

EPIDERMOLYSIS BULLOSA.

THREE CASES: WITH HISTORY OF THE DISEASE IN FOUR GENERATIONS OF THE SAME FAMILY.

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EPIDERMOLYSIS BULLOSA, sometimes described as congenital traumatic pemphigus, though a somewhat uncommon complaint, is one of considerable interest.

It is characterized by an extraordinary vulnerability of the skin, so that on the slightest injury superficial bullae are produced, which are often of considerable size and occasionally haemorrhagic.

The condition is present at or soon after birth, and generally persists in varying degrees of intensity throughout life. It seems to be in nearly every case congenital, and usually, though not always, hereditary.

A case has been reported in which the development of the disease was apparently even antenatal.[1] There were at birth firm adhesions of various parts of the body, which had to be separated by operation, and on the sites of which bullae appeared within a few weeks, and continued to some extent throughout life.

In the *Lancet* of August, 1893, under the heading Congenital Traumatic Bullous Disease, Payne[2] sums up the characters of the affection thus:

1. Bullae, varying in size, are produced on various parts of the body by friction or any injury, but not otherwise.
2. The bullae are often haemorrhagic.
3. The nails are often affected by similar injuries, becoming deformed or even quite destroyed.
4. There is no disturbance of the general health.
5. The affection is congenital, or at least dates from infancy, and sometimes occurs in several members of the same family; and
6. It is quite unaffected by drugs or other treatment, though its severity seems to depend partly upon the state of the general health.

The etiology is uncertain. Tilbury Fox[3] classed his cases with ichthyosis; Kaposi,[4] Lustgarten,[5] Norman Walker,[6] and others with urticaria; and Crocker,[7] in common perhaps with the majority of the more recent observers, described it as a form of pemphigus.

Various constituents of the skin have by independent observers been found to be altered, deficient, or absent. Engman and Mook,[8] followed in this country by A. F. Savill[9] and others, have found the elastic tissue in the papillary and subpapillary regions defective; Elliot[10] an imperfectly developed stratum basale; and Bukovsky[11] a loss of continuity of epidermis and corium.

Petrini-Galatz,[12] and others favour a peripheral nervous origin, on the analogy of the changes in tropho-neurotic leprosy; whilst Blumer[13] compared the affection with haemophilia, pointing out that both diseases are congenital and hereditary, and both due to defective formation of the blood vessels, "dysplasia vasorum," but that in the one bleeding occurs, whereas in the other merely exudation.

The fact that the bullae are always more prominent in warm, moist weather would seem to indicate an "acquired or hereditarily exaggerated irritability of the cutaneous vascular system." The exudation appears to vary in position, not only in different subjects but in different parts of the body of the same subject.

Another interesting feature fairly constantly reported is the presence of small groups of milia—little yellowish, cyst-like bodies—round the edges of bullae or of scars from previous bullae. In none of my cases was this condition prominent, but detailed accounts, with diverse hypotheses as to their nature, may be found in reports of cases published by Darier,[14] Grouven,[15] Csillag,[16] Petrini-Galatz,[17] Beatty,[18] Scott,[18] and others.

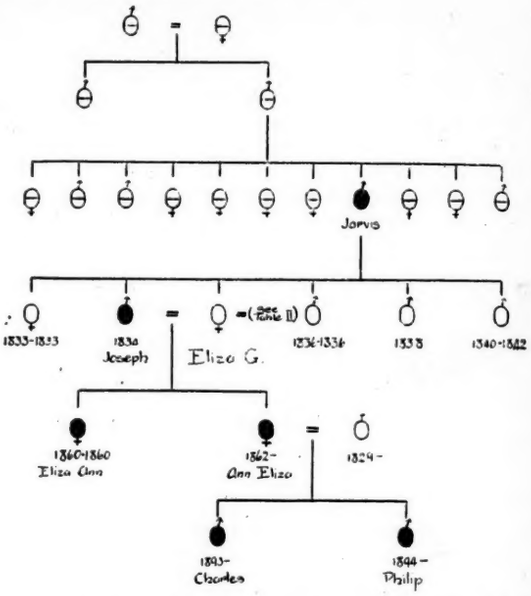

Table 1.—Showing the incidence of epidermolysis bullosa in the family.

The chief interest, perhaps, in the cases under consideration is the evidence of heredity. A definite history has been obtained of blisters lasting more or less throughout life in 6 persons, representing four generations in direct descent, of whom 3 are alive to-day, and form the subject of this paper.

The exact family record can be traced back through nearly two hundred years and embraces six generations, though in neither of the two earlier generations can any information, either positive or negative, as to its incidence be elicited.

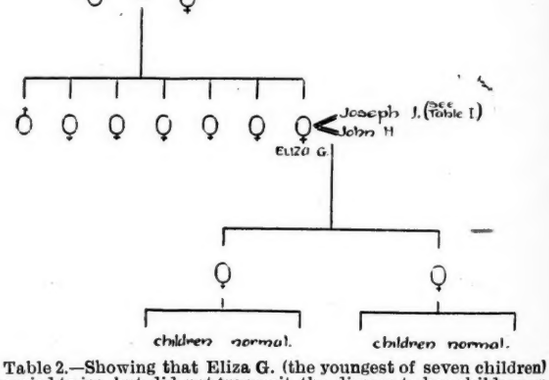

Table 2.—Showing that Eliza G. (the youngest of seven children) married twice, but did not transmit the disease to her children or grandchildren by her second marriage.

In the "third" generation only one member is definitely known to have suffered from persistent blisters throughout life, and from him this weakness in the skin has been transmitted to the cases now recorded.

In the diagram the genealogy will be seen at a glance, the members definitely affected being denoted by black discs, those definitely free by the clear discs, and those about whom the evidence is doubtful or negative by the crossed discs.

Norman Walker[6] states that the disease, like some other hereditary complaints, often affects only one sex in a family; but in this instance no such regularity is found,

the disease being twice transmitted from the father, once by the mother, and attacking four males and two females.

Another point of interest is the large size of some of the families, though as will be seen from the dates it is not, as might perhaps be suggested, the *late* children who were affected; indeed, the order of birth apparently has no influence on the occurrence of the disease.

The three cases are as follows:

CASE I.

Ann Eliza, aged 46, married; husband, aged 79, in fair health, with no history of blisters either in himself or in other members of his family.

The patient is a healthy, active woman, engaged in small secondhand clothes business; previous health and present general condition good.

Skin, except for occasional bullae and at sites of former lesions, is normal in appearance, with no apparent abnormalities in pigment, moisture, thickness, or elasticity.

On the backs of the hands, more especially at the bases of the fingers, are some small bullae filled with clear fluid, alkaline in reaction, and histologically indistinguishable from normal serum. On the feet larger bullae frequently appear, and there are also scars of previous bullae.

She states that when accustomed to wear tightly fitting corsets there were almost constantly present round the waist a number of blisters, some "about as large as a walnut." (Cf. cases recorded by Goldscheider[19] and Wickham Legge.[20]) They also appeared round her legs as long as she continued to wear garters. (Cf. Valentin's[21] case and the second case reported by Elliot.[10])

Menstruation.—Just before the menstrual flow, which is regular but always scanty, the bullae were invariably more pronounced, but improved again with the onset of the flow. This interesting fact, which has been noted also by Lesser[22] and by Bulkley[23] in America, would appear to indicate that the exudation varies with the blood pressure. She states, also, that since her marriage, at the age of 29, she has been less troubled than before it; and that when pregnant she was less susceptible to their formation. "The blisters went into the child," as she puts it.

CASE II.

Charles, eldest of two sons of Ann Eliza (I), aged 15. General physical condition fairly good, though he says he is "always sleepy," and very easily tired by any exertion. The skin, except for the bullae and scars, appears quite normal in colour, moisture, thickness, and elasticity.

Bullae.—Several large bullae on both feet, especially on the soles and front of ankles. On the right hand there are now three small blisters on the back of the fingers, and one small one on the back of the left hand; but there have previously been many more on both hands.

Scars on sites of former bullae mark the front of both legs and the feet, the distribution being irregular, and not following the course of any particular nerve.

Blisters first appeared fourteen days after birth on the feet, and some have been present continuously since. Never any on the body, except when attacked by scarlet fever and measles; several once on the neck, where the collar chafed.

Nails quite smooth and in appearance normal. Teeth good. General health has been fairly good, though he is not strong and is very subject to "colds." He has never had chilblains or nettle-rash. When attacked by scarlet fever and measles bullae are said to have appeared on his chest, but to have rapidly disappeared—doubtless due to "scratching." Several rather indistinct milia have appeared at edges of one of the scars on his right palm.

The blood I have examined with the following result:

Haemoglobin	90.0 per cent.	
Red corpuscles	4,105,833 per c.mm.	
White corpuscles	6,400 ,,	
(= 1 leucocyte to 641 red corpuscles.)		
Colour index	1.09	
Relative count:		
Polymorphonuclears ...	72.4 per cent.	= 4,634 per c.mm.
Eosinophiles	2.8 ,,	= 179 ,,
Basophiles	0.8 ,,	= 51 ,,
Hyalines	1.4 ,,	= 90 ,,
Lymphocytes	22 6 ,,	= 1,446 ,,
	100.0	6,400
Normoblasts	*nil.*	
Poikilocytes	*nil.*	
Myelocytes	*nil.*	

CASE III.

Philip, youngest of the two brothers, aged 14. General physical condition fairly good, quite up to the average of boys in his neighbourhood. As in the other two cases, the skin generally appears normal in colour, moisture, thickness, and elasticity. Bullae of various sizes on both feet, one or two at the front of the ankles being as large as an average walnut. A number of smaller bullae also on both hands, chiefly, though by no means exclusively, on the backs in the neighbourhood of the knuckles.

Bullae first appeared when he was about 12 months old, on the feet, soon after he began to wear shoes; never on the hands until recently, when he began to work as a shoemaker's apprentice. A number of superficial scars remain, chiefly on the shins and feet, at the sites of old bullae.

Nails.—On the left hand the nails are distinctly ribbed, especially the thumbnail. On the right hand also there are well-marked longitudinal ridges. The edges are somewhat, though not markedly, rough. Toenails rather thick, with rough, irregular edges and transverse ridges.

The Blood.—Bulkley[23] states that "eosinophiles are constantly found in abundance in connexion with certain eruptions of the bullous type, with an elimination of eosinophiles in the contents of the blisters of pemphigus, etc." In neither of these two boys was this condition found, the analysis in this case being as follows:

Haemoglobin	90.0 per cent.	
Red corpuscles	4,960,000 per c.mm.	
White corpuscles	6,800 ,,	
(= 1 leucocyte to 729 red corpuscles.)		
Colour index	0.91	
Relative count:		
Polymorphonuclears ...	78.4 per cent.	= 5,331 per c mm.
Eosinophiles	3.6 ,,	= 245 ,,
Basophiles	0 8 ,,	= 54 ,,
Hyalines	1.2 ,,	= 82 ,,
Lymphocytes	16.0 ,,	= 1,088 ,,
	100.0	6,800
Normoblasts	several.	
Poikilocytes	*nil.*	
Myelocytes	*nil.*	

These three cases have also the following points in common:

The mucous membranes are not involved, a condition which Colcott Fox,[24] Duhring,[25] Blumer,[13] and Tilbury Fox[3] alone seem to have noted.

The condition is always worse in warm, moist weather, when the boys are frequently "laid up altogether."

At times there is marked hyperidrosis, especially in the feet. (Cf. Whitehouse,[26] etc.)

The teeth are fairly good, quite up to the average both in number and quality. (Cf. Blumer's[13] and Pernet's[27] cases, and those recorded by Duhring,[25] Colcott Fox,[24] and Galloway,[28] in which the teeth were markedly defective.)

The Eyes.—In none of these patients is there any defect in vision. Examination of the fundus revealed in each case a normal optic disc, healthy retinal vessels, and no evidence of exudation into the choroid or of previous choroiditis. Ocular tension was neither increased nor diminished. There is no evidence or history of phlyctenules or of any ocular disturbance.

In the vascular system there is no ascertainable disease of either the heart or blood vessels. The pulse I have examined digitally with care on many occasions, but have failed to find any appreciable difference in pressure either in the periods in which the patients were comparatively free from bullae or during those in which the condition of the skin was at its worst. Possibly with a sphygmometer some increase in pressure might be found to precede or accompany each "relapse."

Repeated examinations of the urine in these patients have revealed no abnormal constituent, nor is there at present any appreciable deposit. The specific gravity when last taken was 1020, 1014, and 1016 respectively, and the reaction acid.

In a paper by Bulkley[29] a number of cases is collected which relate to the altered state of the urine in no less than eighteen different cutaneous affections. The results, though not very conclusive, "indicate an impaired metabolism which lies at the bottom of the wrong nutrition of the skin, whereby it readily takes on diseased action from various causes, local and internal."

It is therefore possible that a series of analyses more thorough than those I have been able to make might reveal in these cases some abnormality.

DIAGNOSIS.

The diagnosis of epidermolysis bullosa should present few difficulties though its classification must still remain in doubt.

Crocker[7] describes the disease as a form of pemphigus, but so long as the true nature of this itself remains open to doubt, there is but little profit in arguments either for or against such inclusion.

The limitation of the bullae to parts exposed to friction or injury, the fact that it but seldom if ever reacts to arsenic, and the many cases in which the general health remains unaffected, have been put forward as arguments against such inclusion; but, on the other hand, the general clinical appearance of the affected parts, the occasional implication of mucous membranes, and those cases in which

the general health has been impaired in consequence of the complaint, are all points in which it strongly resembles pemphigus.

From *urticaria bullosa*, with which it has been sometimes grouped, it presents the following points of distinction: The course is much more chronic, persisting often for months without apparent improvement; the bleb does not develop on a wheal; there is, as a rule, no accompanying itching, nor is its duration appreciably affected by any changes in diet. Walker[6] states that epidermolysis "is sometimes responsive to treatment for urticaria." I have tried calcium chloride, 10–20 grains t.d., upon one of my cases for a considerable time, with detailed instructions as to diet, the regulation of the bowels, etc., but without the slightest noticeable effect upon the bullae.

From *bullous syphilides* most cases, including those under our consideration, are distinct in that there is no evidence or history of syphilis, either congenital or acquired, nor is the distribution of the bullae that commonly associated with that disease.

Dermatitis herpetiformis resembles it in the frequency of relapses and unsatisfactory response to almost every form of treatment; but the multiformity of lesions and paraesthesiae, which are such a marked feature of that disease, are in epidermolysis completely lacking.

From *leprosy* it is readily diagnosed by the general appearance of the bullae and the absence of either nodules or patches of anaesthesia.

Erythema multiforme, as the name implies, is characterized by the polymorphous nature of the eruption and by the inflammation which usually accompanies it.

Impetigo contagiosa and *varicella bullosa* are, of course, scarcely likely to be mistaken for epidermolysis, since the one is so readily amenable to treatment and the other to spontaneous cure within a definite time.

Treatment.

The treatment of epidermolysis bullosa is most unsatisfactory. Sir Malcolm Morris,[30] in the latest edition of his textbook, published in October last, states that "the disease appears to be incurable, but much good may be done by protecting patients from deleterious influences and attending carefully to their nutrition." Dr. Adamson,[31] again, in a book published last year, writes: "Patients affected with this disease are only free from lesions when properly protected."

In my cases the treatment adopted has been to urge upon the patients the importance of cleanliness, and the application at frequent intervals of pieces of lint or linen soaked in some simple solution, such as glycerinum acid. carbol., glyc. ac. boric., or a calamine and lead lotion. The patients themselves are always careful to avoid, as far as possible, any source of irritation or friction.

Internally nothing except an occasional tonic can be said to cause any real improvement; such degree of success as has occasionally been reported to have followed the administration of various drugs having in all probability been due either to improvement in general condition or to climatic changes. It is somewhat remarkable how soon these cases react to slight changes in temperature, the bullae often disappearing almost entirely for several weeks or even months when the weather is cold, and returning again in the summer.

Since the condition in the two brothers is almost identical, I have, when making trial on either of any drug, refrained always from dosing the other, save occasionally with some inert solution to lessen the likelihood of his sharing his brother's medicine.

In almost every instance any improvement or relapse was in the two brothers simultaneous.

Of the remedies for pemphigus in children and young adults, arsenic has for long been considered almost a specific. For three or four weeks Philip was taking liq. sodae arseniatis three or four times daily, beginning with small doses, ♏ iij, and increasing by 1 minim every other day up to ♏ xv every four hours. After about ten days, had I not had his brother as "control," I should have probably attributed a beneficial reaction to the drug; but since the improvement appeared in the brother almost simultaneously, it was evident that a colder type of weather must have been a much more potent factor than the arsenic.

For another three weeks Philip was given particular instructions about diet and regularity of his bowels, and was taking calcium chloride gr. xx in solution three times a day, as recommended by Sir A. E. Wright and others for urticaria. The weather during this period was for the most part damp, and the condition of both brothers suffered in consequence, no appreciable difference being detected between their respective conditions.

The treatment which, hypothetically, should promise some degree of success is that recommended by Dr. A. F. Savill at St. John's Hospital for Diseases of the Skin.

The observations of Elliot[10] that "the prime feature in the existence of the process is an acquired or hereditarily exaggerated irritability of the cutaneous vascular system"; of Columbini,[32] that "the papillae showed oedema and some infiltration, with dilatation of the blood vessels," and other writers, combined with the fact that the complaint is always worse in warm weather, when the capillaries are dilated, led Dr. Savill to direct attention to the improvement of the cutaneous circulation and the toning up of the small blood vessels by means of ergot. Her cases apparently received benefit from the drug, and are recorded in the *Lancet* for July, 1906. For some months, therefore, with occasional intermissions, Philip was taking ext. ergotae liquidum in increasing doses up to ♏ xx thrice daily. At one time he certainly showed some signs of improvement, but the occurrence of relapses was not prevented, nor did the improvement after patient trial seem to warrant the continued administration of the drug.

Under none of these remedies was the improvement more marked than that due to a short tonic treatment with syr. ferri phosph. co. or syr. hypophosph. co.

Conclusion.

These three cases, with history of three more in the same family, are interesting as showing the hereditary nature and intractability of the disease. They throw no fresh light upon the etiology of the complaint; but the brief review given of some of the literature will serve to indicate the diversity of views that have been put forward. Anyone sufficiently interested in the subject will find in the *British Journal of Dermatology* for August, 1897, a complete summary of all recorded cases up to that date, to which further additions will be found in the article by Dr. Agnes F. Savill in the *Lancet* of July 14th, 1906, and in an exhaustive article on The Inheritance of Certain Human Abnormalities, by Dr. A. M. Gossage, in the *Quarterly Journal of Medicine*,[33] I, iii (April, 1908).

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THERE are at present 161 women acting as skilled assistants in scientific laboratories in Germany. Most of them are employed on microscopic, bacteriological, "serological," and histological work; some are engaged in Roentgen-ray and photographic work. The number of institutes and hospitals in which the women assistants are working is about 125. A registry office has recently been established in Berlin for women qualified to act as laboratory assistants. There is also an institute in which courses of instruction extending over four to six months are given in Roentgen-ray, photography, and histological technique.

SPIROCHAETA PALLIDA:

METHODS OF EXAMINATION AND DETECTION, ESPECIALLY BY MEANS OF THE DARK-GROUND ILLUMINATION.

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Now that it is very generally conceded that the *Spirochaeta pallida* is the cause of syphilis, its recognition, especially in the early stages of the disease, is a matter of considerable diagnostic importance.

I have endeavoured to describe briefly the method of taking the material for examination, the most approved methods of staining, and the method of examining the living organism by means of the dark-ground illumination.

I. TAKING THE MATERIAL.

Although the *Spirochaeta pallida* has been found in almost all forms and stages of syphilis, including even the gumma, the most usually selected lesions for examination purposes are:

(*a*) The primary sore, either in its unbroken or papular stage or in the usual form, the ulcerative chancre.

(*b*) Condylomata and mucous patches, which are so highly infectious, and in which the spirochaetes occur probably in the largest number.

(*c*) The indurated glands.

(*d*) The various forms of eruptive lesions, especially the papular and vesicular forms, more rarely in the roseola.

From the Primary Papule.

The surface of an unbroken papule should be thoroughly cleansed, and then gently rubbed or scratched with a scalpel. After a few seconds an exudation of a clear or slightly blood-stained fluid appears. Films or cover-glass preparations are made from this. The more blood present in this serous exudation the more difficult will it be to recognize the specific organism, and in those cases in which the rubbing has produced bleeding, it is well to remove the blood, and wait till the bleeding has ceased, before attempting to take the serum.

In the case of the ordinary specific ulcer it is important to realize that the spirochaetes are found in the deeper parts of the wound, and that the superficial layer consists of all kinds of bacteria, and contains the *Spirochaeta refringens* in large numbers, but very few of the *Spirochaeta pallida*. In a preparation made from the surface secretion of a sore, very great difficulty will be experienced in finding *Spirochaeta pallida* and also in distinguishing other non-pathogenic spirochaetes, which are present there in large numbers, from the genuine spirochaete, which may have undergone some degenerative changes. The non-success of many bacteriologists, in the early days after Schaudinn's discovery, was due very largely to the improper taking of the material.

The surface of a chancre should be thoroughly cleansed with water or saline solution, and then rather firmly rubbed with a little cotton-wool or gently scraped with a knife, needle, or sharp spoon, avoiding bleeding. The few drops of blood which first appear should be removed, and then, after waiting a few seconds, a quantity of clear or slightly blood-stained serum exudes. This may be somewhat encouraged by gently massaging the sclerosis. Films should then be made from this serum, either on slides or cover-glasses which have been very thoroughly cleaned. The slides should be slightly warmed first, so that the almost invisible film dries at once. Schaudinn found that, by exposing the slides to fumes of osmic acid for a few seconds before and after spreading the film, the spirochaetes were killed and fixed in a somewhat more natural position. Too long exposure of the still moist film to osmic fumes diminishes the staining properties.

Cover-glass preparations of the serum for the examination of the living organisms should be made on very thin and clean slides. Films made from the serum, "Reiz-serum, or serum of irritation," as Hoffmann terms it, generally contain large numbers of *Spirochaeta pallida*, few red blood corpuscles, and very little or no cellular débris. There may be a little difficulty in focussing such thin films, but the presence of a few red corpuscles assists, and in stained preparations the spirochaetes, if present, are easily found. According to Hoffmann, films made from scrapings (*Geshabe*) contain the largest number of spirochaetes.

Some workers excise a small piece of the tissue, and rub this up with a little distilled water, and make films and cover-glass preparations from a drop of this fluid.

Condylomata and Mucous Patches.

Material suitable for examination is obtained in much the same way as from the primary sore. The serum which exudes after rubbing and scraping the surface of a chancre or condyloma may be collected in capillary tubes or blood capsules, the ends being subsequently sealed in the flame. Films and fresh cover-glass preparations may be made from this afterwards.

The Indurated Glands.

The *Spirochaeta pallida* may also be found in the nearest lymphatic glands, commonly those of the groin when the primary sore is situated on the genital organs.

Preiss,[1] who has been able to demonstrate the *Spirochaeta pallida* in nearly 100 per cent. of cases of syphilis in the secondary stage, says that gland-puncture should be used in all cases in which the examination of the serum from an ulcer proves negative. This is likely to be the case if the ulcer is partially or completely healed, if it has been treated with caustics, or if it is disintegrated. He has never failed to find the specific organism during the period between the first typical hardening of the glands and the first eruption—six to ten weeks.

The skin over the gland is washed with an antiseptic, shaved, and then rubbed with ether. A syringe with a needle a little larger than that of an ordinary hypodermic is plunged obliquely into the long axis of the gland, which is firmly fixed with the left hand. That the needle is actually in the gland can be ascertained by moving it about, when the gland will simultaneously be felt to move. Whilst the piston is being withdrawn, the whole gland is massaged or squeezed with the left hand. In this way a few drops, probably only enough to fill the needle, are withdrawn. Cover-glass and film preparations are then made from this blood-stained fluid, and examined in the fresh and stained condition.

Syphilitic Eruptions.

The roseola presents the greatest difficulty. Mere pricking the spot and examining the blood affords very little chance of finding the organism. It is much better to scrape the surface gently, and, avoiding bleeding as much as possible, obtain a little clear or blood-stained lymph. Rosenberger, in order to avoid bleeding, pinches up the skin in a pair of forceps until it is pale, and then incises, and aspirates one or two drops of serum. Sometimes blisters are applied over the surface, and the contents of the resulting bulla examined.

In vesicular or pustular forms of eruption the serum or pus is aspirated in capillary tubes or films made directly from the fluid. Better results are, however, obtained by opening the vesicle, removing the contents, and gently scraping the base of the exposed lesion.

II. METHOD OF EXAMINING THE MATERIAL.

The material containing the *Spirochaeta pallida* may be examined by means of dry-stained films or in the living condition in cover-glass preparations.

Staining.

Films may be made either on cover-glasses or on slides, but owing to the nature of the staining reagents they must be scrupulously clean. It has been very generally believed that the *Spirochaeta pallida* was a very difficult organism to stain, that it required special stains, and that the staining process should be extended over a long period. Many of the early failures were attributed to the staining, whereas in some cases, at least, it was the method of taking the material which accounted for the absence of the organisms. It is now known that the spirochaete can be stained by many of the ordinary aniline dyes besides Giemsa's modification of Romanowsky's stain. A. Ehrlich

and Lenartowitz[2] find that the *Spirochaeta pallida* stains in:

Ziehl-Neelsen and carbol-gentian-violet, in from half a minute to two minutes.
Carbol-methylene blue and carbol-dahlia, in from five to ten minutes.
Loeffler's methylene-blue and carbol-thionin, in from twenty-five to thirty minutes.
In saturated aqueous solution of Bismark brown and vesuvin and saffranine, in one hour or more.

At the present time Giemsa's stain or some other modification of the Romanowsky stain is almost universally used, partly because it stains the organism better than most others, and partly because it imparts to the *Spirochaeta pallida* a more or less distinctive, but by no means absolutely characteristic, tint. Almost all the other spirochaetes are stained bluish with this stain, whilst the *Spirochaeta pallida* takes a reddish colour.

I have experimented with most of the stains recommended from time to time, especially Giemsa's, Leishman's, and Wright's, and find that all to some extent, depending on the duration of the staining and probably the cleanliness of the slides, tend either to cause a granular deposit, or stain the background of the preparation. Preferably I use Giemsa's or Leishman's stain, and on the whole I am inclined to agree with Leishman, who finds that his stain whilst staining the organisms well does not give as much deposit as the first named.

Leishman's Stain.

This can be bought ready prepared, or can be made by rubbing up in a mortar 0.15 gram of the powder with 100 c.cm. of Merck's analytically pure methylic alchol. Burroughs Wellcome have placed on the market a soloid of Leishman's stain which gives excellent results. This stain can be used in two ways:

1. A few drops of the stain is poured over the air-dried film and allowed to act for about thirty seconds. At the end of that time double the amount of distilled water is added drop by drop, and the slide gently tilted, in order to mix the two solutions. The preparation is then left to stain for about thirty minutes, when it is quickly washed in distilled water, equally quickly dried in the air, but not by heat, and mounted in Canada balsam, or examined in oil.

2. *Method.*—Here the films are not fixed. One part of Leishman's stain is mixed with two parts of distilled water in a watch-glass, and this mixture is gently poured over the film, and allowed to stain for twenty-five minutes. After which the preparation is gently washed, dried, and mounted.

According to Leishman[3] the advantages of the second method are greater freedom from débris, easier detection of the spirochaete, and the spirochaetes appear more numerous than in the fixed films, owing to their being more deeply stained.

I find that a method intermediate between the first and second gives the best result on freshly-made films.

The duration of staining may in either of the above methods be increased, but there is more risk of the background becoming coloured, or a granular deposit taking place. A very good plan is to stain the films for about fifteen to twenty minutes, then roughly but quickly wash, and stain for another fifteen to twenty minutes.

Prolonged staining is, in my experience, attended with a risk of a granular deposit, or a flocculent scum, which settles on the surface of the film and slide. In order to obviate this I have tried staining the slides in wide-mouthed bottles or tubes, but I do not think this is as successful as the following simple plan:

The Leishman stain is poured on the film, and after a few seconds—say ten—double the quantity of distilled water is added, and then the diluted stain is poured rapidly on to the surface of a slightly curved piece of glass, and the slides laid, filmside downwards, on the stain. In this way any precipitate in the stain falls on the sheet of curved glass.

Giemsa's Stain.

This should be bought ready prepared from Grubler or from the agents—for example, Baker, 244, High Holborn.

For use the stain is prepared as follows: To 1 c.cm. of distilled water a few drops of 1 in 1,000 solution of sodii carb. are added, and then 1 drop of Giemsa's stain; mix. The air-dried films are fixed for five to ten minutes, or longer, in absolute alcohol, or for one to five minutes in methylic alcohol, and then the above solution of stain is poured on and allowed to act for one hour. The preparations are then rapidly washed in distilled water, quickly dried, and mounted in Canada balsam or simply examined in oil.

Film preparations can also be stained without previous fixation, as in the second method of Leishman; the only point to attend to is to pour the staining solution on gently and very carefully wash, or otherwise the unfixed film will be washed off.

Burroughs, Wellcome, and Co. have made "soloids" of eosin-azur for the Giemsa stain, and as these are dissolved merely in pure methylic alcohol the films need not be previously fixed. These give excellent results. The method and duration of staining are precisely the same as that mentioned for using Leishman's stain.

With all these staining methods there is a little compromise to be made, as, the longer the duration of staining, the darker the organism and the thicker it appears, but the greater the tendency to a deposit.

THE EXAMINATION OF THE SPIROCHAETA PALLIDA IN THE LIVING CONDITION.

Hoffmann[4] says that for the expert endowed with keen vision the easiest and most rapid method of detecting the *Spirochaeta pallida* is to examine it in its living condition. For this purpose he considers a good apochromatic $\frac{1}{12}$ in. objective, with compensating ocular 6 and 12, indispensable. He advises the use of cover-glass instead of hanging-drop preparations, which are rung round with vaseline to prevent evaporation. These are made from the serum alone or the serum diluted with normal saline solution, in which he found the spirochaetes still living for a week. Hoffmann states that Reuter could not see the living *Sp. pallida* with an ordinary Zeiss achromatic $\frac{1}{12}$ in. objective, but with an apochromatic Zeiss $\frac{1}{12}$ it was plainly visible.

My experience with regard to the visibility of the *Spirochaeta pallida* in the living condition in cover-glass preparations of the serum is rather interesting. Working with a magnificent $\frac{1}{12}$ in. achromatic objective of Leitz of N.A. 1.30, and also with Swift's $\frac{1}{12}$ in. apochromatic objectives of N.A. 1.40, and compensating oculars 6, 8 and 18, combined with an oil-immersion condenser of N.A. 1.40, using critical image and working in a dark room, I can say that I have seen three or four living spirochaetes after hours of search under these favourable conditions.

I have placed a freshly made cover-glass preparation on the microscope, and with a Zeiss $\frac{1}{8}$ apochromatic objective of N.A. 0.65 and compensating ocular 18, with the new dark-ground condenser of Leitz and with a Nernst lamp, I have found a field containing fifteen to twenty actively moving *Spirochaeta pallida*. Without moving the slide in the slightest, I have substituted the ordinary condenser, both oil-immersion and dry, have turned on the $\frac{1}{12}$ in. objective, and replaced the Nernst lamp by a paraffin lamp, and have been totally unable to see one spirochaete in the selfsame field, even after a considerable time.

Further, I have returned to the dark-ground method, and, having found a long or specially well-marked spirochaete, I have noted its exact position as regards, say, a red blood corpuscle. Retaining the slide in that position, I have replaced the existing apparatus by the $\frac{1}{12}$ in. objective, with the ordinary condenser, and have seldom, even after prolonged examination, seen that spirochaete.

In other words, I find that the *Spirochaeta pallida* is, under the most favourable condition, almost invisible, even when known to be present, when examined by $\frac{1}{12}$ in. objective with ordinary transmitted illumination. This does not imply that the organism is beyond the range of visibility owing to its small size, but that it is practically invisible owing to its very slight refractive index.

Examination by means of Dark-ground Illumination.

By means of the new dark-ground condensers, however, it is now possible not only to see, but to see easily, many organisms with comparatively low powers.

Such condensers, made by Reichert, Zeiss, Leitz, Beck, and others, vary somewhat in their principle and construction. I have tried all of them, and prefer that made by Leitz.

A brilliant source of illumination is absolutely essential in using any of these dark-ground condensers. Briefly, my outfit consists of the following:

1. A Leitz dark-ground illuminator.
2. Nernst ½ ampère lamp.
3. A Nelson's aplanatic bull's-eye condenser. Probably the new small arc lamp recently introduced by Leitz would be better. It has a bull's-eye condenser fitted with it.
4. Slides of a given thickness (1 mm.), and cover-glasses preferably of known thickness.

Full directions are supplied with any one maker's condenser, and a short but good account is also given in Spitta's *Microscopy*, second edition, the best treatise on the microscope published in the English language.

The dark-ground condenser having been placed in the substage and centred, the light from the Nernst lamp concentrated

by the bull's-eye thrown on the mirror, the slide holding the fresh serum preparation is placed on the stage and is oiled to the condenser.

I use Zeiss apochromatic $\frac{1}{3}$ objective with compensating ocular No. 18, which gives approximately a magnification of 560 diameters. Leitz $\frac{1}{12}$ in. oil-immersion objective may be used with his dark-ground condenser, provided its N.A. is cut down to 0.9 by a special stop which he supplies. This I find answers admirably.

The use of an immersion $\frac{1}{12}$ objective cut down by a stop to a N.A. of 0.9 has the following advantages: (1) Increased magnification, (2) the cover-glasses need not be of specified thickness, (3) the image is considerably brighter, and (4) the resolution is greatly increased.

It is not essential to use apochromatic objectives for this method of examination, an ordinary $\frac{1}{6}$ with deep eyepieces is suitable, but the achromatic dry lenses do not give as good a view as the apochromatics.

Spirochaeta pallida examined by this method appear as shining silver-like threads with corkscrew turns lying on a black or blackish background. They will be seen to possess three movements—namely, rotation about the longitudinal axis, forward and backward gliding motion, and flexion of the whole body.

Of these, the last-named is the most easily seen and the most characteristic. It is a slow bending motion. The rotation about a longitudinal axis is to be seen with the stopped $\frac{1}{12}$ in. objective, and gives the impression of a screw being turned. The forward and backward movement is—at least when examined in its natural fluid, the serum—very slight indeed. If there be streaming movement of the serum, which is often induced by evaporation at the margin of the cover-glass, the spirochaete will be carried rapidly across the field, and it may soon be out of sight.

The actual movement of locomotion is under ordinary condition so slight that I should hardly expect to find that the organism had moved much from the exact spot at which it had been seen an hour previously. This is very different from what is met with in the other spirochaetes —for example, *Spirochaeta refringens* or *Spirochaeta balanitidis*.

Eiter[5] gives the following excellent description of the *Spirochaeta balanitidis*, and I may add that, in the absence of a case of that disease, one can see all the movements he describes in the *Spirochaeta buccalis* by simply making a cover-glass preparation from the scrapings of one's teeth.

When seen by means of the dark-field illumination this spirochaete appears pale yellow to deep orange red, as compared with the delicate white of the *pallida*. The body is fatter, the windings are longer and flatter, and it is much more energetic than the *pallida*. It moves rapidly in jerks backwards and forwards, frequently crossing the whole field with one impetus. At times it moves with a wave-like progression, either like the movements of a snake or those of a caterpillar. The wave-like movement, which does not cause the spirochaete to move in its entirety, is seen in this form as in the *pallida*. Besides, one sees screw-like movements, by which the body progresses by means of a rotation on its long axis. The *pallida*, on the other hand, moves in three ways: (1) Rotation around the long axis, (2) by bending its body, and (3) by jerks backwards and forwards. It seems, however, that the *pallida* do not move widely or energetically, and when a *pallida* spirochaete is seen crossing the field, it is always being carried in the current of the fluid medium.

So far as my experience goes no other organism could be easily confused with the *Spirochaeta pallida* when seen by dark-ground illumination, except the *Spirochaeta dentium*. This organism, which is found in small numbers in the tartar of the teeth, resembles the *Spirochaeta pallida* in its white silvery colour, its numerous turns and its movements, but it is much shorter, measuring on an average 5 to 8 μ with 6 to 16 windings.

As to the duration of the life of the *Spirochaeta pallida*, I found that in cover-glass preparations made from the serum taken from a primary sore, some of the spirochaetes were recognizable at the end of thirty-one days, and that they still possessed their characteristic bending or slight swaying movement.

Examination of Stained Specimens.

The *Spirochaeta pallida* in stained preparations is seen to consist of very fine spiral threads which measure on an average 6 to 15 μ long, although some reach 16 to 24 μ, and about $\frac{1}{4}$ μ wide.

It possesses a number of extremely regular, deep, and closely approximated spirals. They vary in number from 6 to 22 μ, and the width of the curves, or the distance from the summit of one convexity to that of the next, is very constant—that is, about 1 to 1.2 μ. This is a very important characteristic, and can easily be ascertained by measuring the length of the organism, and dividing that figure by the number of curves. If an eyepiece micrometer is not at hand, the curves may be measured with tolerable accuracy, as pointed out by Leishman, by comparing a spirochaete with a red blood corpuscle of which the average diameter is 7.5 μ, when it will be found that a spirochaete in this distance will have from six to seven turns.

Both ends of the organism terminate, as a rule, in a very fine point, or, according to Schaudinn, in a fine flagellum, which I have, however, not seen.

The whole organism looks, as Schaudinn described it, as if it were a spiral turned out of a lathe. This typical spiral form is seen not only when the organism is in motion, but also when at rest, whilst all other analogous spirochaetes of this type show the spirals only when they are actively moving; when they are at rest they become nearly straight, or have very long flattened-out undulations. Schaudinn points out that there is only one spirochaete, the *Spirochaeta dentium*, of which we have spoken before, which has smaller fixed spiral arrangement.

The great length of the sharply-pointed threads in proportion to its remarkable thinness, the depth, steepness, and regularity of its corkscrew windings, the slight variations in form, the relatively great elasticity, with slight deformation of the spirals, the slight refractiveness, the method of movement in the living condition, and finally the reddish tint that it stains by Giemsa's stain, are the diagnostic features (Hoffmann).

Most of the other spirochaetes are distinguished from *Spirochaeta pallida* by the greater thickness in proportion to their length, their markedly refractile character, the blunt ends, the much more active movements—eel-like—with greater change of position. The spirals are much flatter, more irregular, the organism more pliable, and therefore their form is more changeable, and when stained by Giemsa have a bluish-red tint.

The number of *Spirochaeta pallida* found in a cover-glass or film preparation taken from a primary sore varies enormously. In fresh films, examined with $\frac{1}{6}$ objective and 18 eyepiece, I have seen as many as ten to fifteen on one field; and in stained films made from the same preparation, and examined with $\frac{1}{12}$ objective and No. 2 ocular, I have found three, four, or even six organisms in one field, but this, as far as my experience goes, is very exceptional. Hoffmann says that the spirochaetes vary considerably in number even in the same lesion. Quite recently I had a good example of this in a primary sore from which I took two films made from the serum obtained by scraping the sore with a sharp spoon. In these films, taken at 10 a.m., I found very numerous *Spirochaeta pallida;* but when I took some twenty-four films (dry and moist preparations) from the same sore, from serum obtained by briskly rubbing the surface of the lesion, I found exceedingly few organisms, although these were taken only ten hours later in the day and the wound had not been touched in the interval. Hoffmann mentions, as an example of the unequal distribution of the specific organisms, a case with two primary sores on the abdominal wall, lying quite near one another; in the one he found the spirochaetes very numerous, in the other none, although the chancres were clinically indistinguishable.

Effect of Treatment.

As to the effect of treatment on the spirochaetes, mercury given internally and mercurial wash or iodoform ointment applied externally is undoubtedly associated with a gradual diminution in the number or an actual disappearance of the spirochaetes, and this takes place more rapidly in some cases than in others.

The following is an example of the rapid disappearance of the organisms in a case recently under my care:

February 5th. Case first seen; typical large indurated sore with enlarged inguinal glands. *Spirochaeta pallida* very numerous both in fresh films examined by dark-ground illumination, and in stained preparations. Gave hydrarg. c creta internally, and locally iodoform.

February 12th. Sore beginning to heal; spirochaetes markedly diminished.

February 20th. Sore not healed. Spirochaetes only found with difficulty.

March 2nd. Sore not healed. No spirochaetes found in fresh or stained films. Gland juice obtained by aspiration of the lymphatic gland—entirely negative.

CONCLUSIONS.

1. The easiest, quickest, and by far the most certain method of detecting the *Spirochaeta pallida* is by the examination of cover-glass preparations made from the serum, by means of dark-ground illumination.
2. That the most important part of the whole procedure is the correct taking of the material, whether for fresh or dry film preparations.
3. That it is not essential to examine fresh films (which have been rung round with vaseline) at once, as the organism may be recognized some days later.
4. That the serum of irritation may be conveniently taken in capillary tubes or blood capsules, provided the ends are sealed, and cover-glass preparations made from it may be examined at leisure.
5. That whilst the finding of the *Spirochaeta pallida* indicates, as far as our knowledge goes at present, syphilis, a negative examination is of little value, at most it only justifies a suspicion that the disease is not present.

P.S.—I should add that the *Spirochaeta pallida* in stained preparations somewhat fade sooner or later. This fading of aniline stained preparations, blood or other films, when mounted in Canada balsam is a source of great disappointment. I have tried Grubler's neutral balsam, but with only moderate success. I should be delighted to hear of a mounting medium in which aniline stained preparations were permanent.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE ETIOLOGY OF BERI-BERI.

I HAVE read with interest the report in the JOURNAL of April 24th, p. 1007, of the meeting of the Society of Tropical Medicine and Hygiene at which the etiology of beri-beri was discussed, and observe that it was suggested that after the husk was removed from rice an epiphyte developed outside the grain and generated a nerve toxin. In the JOURNAL of November 28th last there is an interesting note by Dr. Saldanha, in which he says that there is a fungoid disease of rice, the active principle of which he calls "arsin," and to which he attributes the disease. He points out that the Chinese cook rice with the dust on it as it comes from the sack and thus consume the arsin. It is perhaps worthy, therefore, to note that in Korea, where I have been for five years, beri-beri does not seem to be common, although rice is as exclusively the diet of the people as in China, and Dr. Saldanha's theory suggests a reason for this immunity. The Koreans are extremely particular about washing rice before cooking it, and though they often drink the water in which it is boiled, as do the Chinese, they very carefully mix it with several separate quantities of water, each of which is poured away before the cooking commences, the process lasting five to ten minutes. This serves to remove all dust and the arsin which Dr. Saldanha tells us it contains, and may account for the fact that I have not seen a single undoubted case of the disease in five years.—I am, etc.,

London, W. HUGH H. WEIR.

SULPHURIC ACID IN CELLULITIS, BRONCHIECTASIS, AND CONSUMPTION.

As we have received inquiries from different parts of the country as to whether we have used the treatment mentioned in our note in the BRITISH MEDICAL JOURNAL, p. 407, August 15th, 1908, on the use of acid. sulph. dil. in large doses (20 to 30 minims well diluted every four hours), for pathological conditions other than cases of furunculosis, we may mention that we have used it with equal success in cases of acute cellulitis arising from an infected skin abrasion caused by bones from *high* game and also with great benefit in checking the profuse expectoration in cases of bronchiectasis, and in the sweating and expectoration in cases of pulmonary tuberculosis.

In a case of a suppurating dermoid which we are now treating in this way the result so far is not so successful as in the above-mentioned conditions, no doubt because the infected area is encysted.

J. REYNOLDS, M.D.

London, S.W. RUSSELL J. REYNOLDS, M.B., B.S.Lond.

ACUTE ADDISON'S DISEASE.

H. Y., female, aged 33, was said to have suffered from chronic bladder and kidney disease for five years. When first seen on March 8th, 1909, she complained of increasing weakness and loss of appetite of three weeks' duration. She was thin and ill nourished, and the urine, of which she passed 2½ pints in twenty-four hours, was alkaline, and contained a considerable amount of muco-pus. Both kidneys were easily palpable, but not tender. Beyond this there were no physical abnormalities, and there was no pain and tenderness in the abdomen.

On the next day she commenced to vomit after any food, and even without food. Day by day she grew weaker, and the vomiting continued until March 16th, when she was given 5 grains of suprarenal extract every four hours. For twenty-four hours she became brighter, and the vomiting ceased, but soon the symptoms resumed their course, and on March 24th she died. During the last few days she lost the power of swallowing, and was fed by a nasal tube. Enuresis also set in. Consciousness was retained until the moment of death.

Permission for a *post-mortem* examination was readily given. The kidneys were in a state of advanced tuberculosis, very large, and riddled with cavities containing pus and caseous material. The capsules of the kidneys were studded with tubercles. The bladder was thick-walled, and there were numerous ulcers. The suprarenal glands were covered and permeated by miliary tubercles. The remaining organs were not affected.

The diagnosis during life seemed to lie between hysterical vomiting and Addison's disease, especially as there was a definite history of former nervous attacks of a melancholic type, accompanied by difficulty in feeding. The marked though transient effect of the extract of suprarenal gland was of great interest.

London, N. A. F. SHOYER, M.D.

TREATMENT OF RHEUMATOID ARTHRITIS BY CATAPHORESIS.

FROM the memorandum by Dr. J. Curtis Webb in the JOURNAL of April 17th, p. 952, I gather that in the treatment of rheumatoid arthritis by cataphoresis he is in the habit of applying the positive and negative electrodes moistened with the same solution on either side of the joint affected. I venture to suggest that he will get better results if one electrode and one solution be applied to the particular joint, while the other electrode is placed elsewhere on the body.

My method is to surround the joint affected with a large pad of lint of ten layers in thickness soaked in the particular solution, and to place round this pad a metal gauze electrode tightly bound to the limb and connected with the negative pole. By this means salicylic acid is introduced when a solution of sodium salicylate is employed; iodine when potassium iodide is used, and chlorine when sodium chloride is applied. The positive electrode, laid on a large pad of lint soaked in an ordinary salt solution, may be placed on another part of the body. I can speak from personal experience of the value of this treatment in reducing swelling, alleviating pain, and lessening rigidity of the tendons in cases of rheumatoid arthritis.

Glasgow. W. F. SOMERVILLE, M.D.

UNDER the will of the late Mr. Alfred Midgley of Buxton, a Manchester merchant, the Huddersfield and Manchester Infirmaries each receive a bequest of £1,000.

Reports of Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

Tuesday, April 27th, 1909.

Dr. T. H. GREEN, Vice-President, in the chair.

Blood Pressure.

DR. O. K. WILLIAMSON read a paper on the influence of the vessel wall on (so-called) arterial blood-pressure readings. Observations by the method of circular compression were made on the leg and arm of each patient in 21 cases of high arterial blood pressure. In all of these cases in which the arteries of the leg and foot could be felt these were found to be abnormally resistant, and more so than those of the upper extremity; and in nearly all the cases there was also marked thickening in the arteries of the upper extremity. Ten cases of normal or low blood pressure, in which the arteries presented no clinical evidence of disease, were investigated in the same manner so as to afford a basis of comparison. The observations were made on the calf and arm, the patient observed being recumbent, and the part of the limb on which the observation was made at the level of the heart. Oliver's compressed-air haemomanometer was used with his 12 cm. armlet. These observations showed that the resistance due to the arterial wall might markedly influence the readings for the following reasons:

1. In the high blood-pressure cases the leg systolic readings were in nearly all cases markedly higher than the corresponding arm readings (average difference 32 mm.), and the cases of highest blood pressure yielded distinctly greater differences than the cases of somewhat lower blood pressure. On the other hand, the leg diastolic readings in these cases were, on the average, practically identical with the arm diastolic readings (average difference less than 2 mm. Hg).
2. In the case of normal or low blood pressure the systolic arm and leg readings were found, on the average, to be identical (average difference less than 2 mm. Hg).
3. Inasmuch as the blood pressure in the leg could not be higher than that in the arm (either limb being at the level of the heart), and seeing that the influence of the tissues superficial to the artery might (when a sufficiently wide armlet was used) be neglected, it necessarily followed that the difference between the arm and leg readings could only be due to resistance of the arterial wall.
4. The conclusion that the abnormal condition of the arterial wall was a direct result of the increased blood pressure would seem to be inevitable, for the only obvious difference between the conditions to which the arteries of the legs and those to which the arteries of the arms were exposed in daily life was that, owing to the action of gravity, the former were subjected to greater hydrostatic pressure from a higher column of blood than were the latter.

Dr. T. H. GREEN favoured the cultivation of unaided clinical observation in addition to instrumental methods. Dr. W. P. HERRINGHAM had been lately experimenting with arteries removed and kept for three days in a solution of sodium fluoride and found that they, in many instances, gave high readings that were apparently due to the arterial wall. Also that in the same patient the leg arteries gave much higher readings than those of the arm. Also differences observed during life between the readings of the arm and leg were confirmed in the arteries after death. Dr. T. D. SAVILL referred to the greater change in the leg arteries of old people as compared with those of the arm, but thought the vital factor an all-important one. Dr. LEONARD HILL raised the question whether the differences between the arm and leg readings might not be due to error in instrumentation or the influence of muscular contraction. The readings in arm and leg should be taken simultaneously, and with the muscles relaxed, to be dependable. Dr. C. O. HAWTHORNE emphasized the variability of the strength of the cardiac systoles in producing variation in readings and the importance of comparing the blood-pressure reading with sphygmograms. Dr. WILLIAMSON replied.

CLINICAL SECTION.

Friday, April 30th, 1909.

A. E. GARROD, M.D., F.R.C.P., in the Chair.

Mongolian Imbeciles.

CASES of Mongolian imbecility were shown to the number of 14: 3 by Dr. G. A. SUTHERLAND, 4 by Dr. POYNTON, 2 by Dr. LANGMEAD, 2 by Dr. GUTHRIE, and 3 by Dr. MORLEY FLETCHER. Dr. SUTHERLAND'S cases were aged 5¾, 6, and 4 years respectively. In regard to the thyroid treatment of these cases he said that if a patient improved under that treatment it was probably not an instance of Mongolism. To deal successfully with this disease it was necessary to know the cause. In the majority of patients suffering from this malady death occurred in early life. In Dr. POYNTON'S cases thyroid treatment had been fully tried, and he said that the object of showing the cases was to raise the point as to the value, if any, of thyroid treatment in the condition of Mongolian deficiency. The cases were in themselves of the usual type, the oldest being of a comparatively mild degree. They were not related to one another. Twelve cases had been treated for prolonged periods with thyroid, but the results had not been encouraging. The poor circulation and severe chilblains were somewhat improved by this remedy, and it would appear that these cases were rather brighter and more responsive after commencing the treatment. There did not seem to be any specific action on the underlying constitutional deficiency. In his experience, considerable doses of thyroid soon induced in Mongols signs of excitement and disturbance of health as a direct result, and for that reason small doses only had been given for prolonged periods, such, for example, as 1 grain of the powdered gland twice a day for a child aged 3 years. In this series of cases some had been first-born, some last born, and others in the middle of a family. Some mothers had been young, some old, some neither young nor old. Dr. LANGMEAD pointed out that in one of his cases there was congenital morbus cordis, as evidenced by a loud systolic bruit, and an accessory auricle on the right side. In the other there was a congenital lesion of the heart, as shown by an increase of the cardiac dullness to the right, and an evident but slight murmur in the pulmonary area. One of Dr. GUTHRIE'S cases had extraordinary powers of imitation, mimicking all the technique of massage, feeling pulses, listening to chests with the stethoscope, simulating the walk of a hemiplegic patient, and pretending to carry on a conversation at the telephone. Dr. MORLEY FLETCHER said it was difficult for him to believe in the so-called typical hand of the Mongol, and pointed out that a more important peculiarity was the rough condition of the skin of the hand. Dr. SHUTTLEWORTH observed that there was still much confusion in the minds of medical practitioners as to the characteristic differences between Mongols and cretins. He also did not consider that thyroid improved the condition of Mongolian imbecility. He took a more cheerful view in regard to the results of careful training of these cases, especially in the better classes, where circumstances were more favourable for success. In his opinion a Mongol would be, however carefully trained, nothing but a hewer of wood and drawer of water to the end of his days, being only capable of imitation and doing that which he was in the habit of carrying out frequently. He agreed that the shape of the hand was not a universal characteristic in Mongolism.

Omentopexy.

Mr. JAMES SHERREN showed a patient, aged 34, who in April, 1903, underwent the operation of omentopexy for ascites due to cirrhosis of the liver. She had remained free from symptoms since. Mr. C. GORDON WATSON observed that in the majority of cases he had noticed the operation was a complete failure, and Dr. ROLLESTON said that cases suitable for this treatment were only met with occasionally.

Hereditary Defects.

Mr. H. B. ROBINSON and Mr. W. H. LLOYD showed a case of hereditary transmission of claw-hand and foot in mother and child. The child, 1 year old, showed claw-foot, and the mother had a similar deformity of her feet in addition to deformed hands.

Infective Gangrene.

Mr. W. F. FEDDEN read a paper on six cases of acute infective gangrene of the extremities. He considered that infective gangrene might be produced by a great variety of definite organisms—namely, the *Bacillus aërogenes capsulatus*, *Bacillus coli*, *Bacillus pyocyaneus* (vide Dudgeon and Sargant), *Streptococcus pyogenes*, and *Staphylococcus aureus*. It was a noteworthy fact that the bacillus of

malignant oedema did not find a place in any of the six cases. The prognosis of cases due to *Bacillus aërogenes capsulatus* was undoubtedly very much more favourable than in those due to streptococcal infections, whilst those due to staphylococcus appeared to hold an intermediate position. The period between infection and the appearance of actual gangrene in the first group was almost constant—namely, thirty to thirty-six hours, whereas in the group caused by streptococcus, this period might be as short as an hour. The incubation period of the staphylococcal group was very variable, but might be prolonged to several days. The importance of early amputation was self-evident, and was so urgent that the diagnosis must be made on clinical data, as the time for bacteriological confirmation could not be afforded.

Section of Diseases in Children.

Friday, April 23rd, 1909.

Mr. R. Clement Lucas in the Chair.

The Vision of School Children.

Mr. N. Bishop Harman, in a paper on the effects of school-life upon the vision of the child, after reviewing previous statistics, communicated the results of the examination of 1,100 children seen at the Belgrave Hospital and the Middlesex Hospital. In all cases the eyes were under the influence of atropine, an ointment of 1 per cent. having been used four times a day for a week. Of every 100 children with defective vision, over 71 had hypermetropia, and less than 29 were myopic. These 100 children represent about 10 per cent. of the school children, hence the incidence of myopia amongst school children in London might be considered not to exceed 3 per cent. About 78 per cent. of the cases were girls. This he attributed to the girls having less outdoor exercise and not being in such a healthy condition, as well as to the fine needlework done by them. During the school age the incidence of hypermetropia increased, as might be expected from what was known of the growth of the crystalline lens. At the same time the curve of myopia rose upwards to the highest positions on the chart. Such a phenomenon led to the conclusion that the diminution of the hypermetropic astigmatism had been due to the transference of these cases to the myopic group. On the whole the condition of the eyes of London children was very fair, especially when compared with similar returns collected in Germany. The greater proportion of the cases of bad vision were due to natural conditions of the eye, that is, hypermetropia and hypermetropic astigmatism. Newborn infants were always hypermetropic. The incidence of "manufactured" bad vision —myopia and its associated astigmatisms—formed between a quarter and a third of the whole of the cases. The evidence of the deterioration of astigmatic eyes indicated the desirability of a special oversight of these cases. He did not think that a healthy school-life was harmful to the sight of the child population. In conclusion, he criticized adversely a paper on the inheritance of vision, recently published by Miss A. Barrington and Professor Karl Pearson. It led to the conclusion that the increase of myopia was due to fate and hopeless, but in practice it was found that amelioration of school conditions and the relief of strain in ill-shaped eyes did stay the increase. Mr. Sydney Stephenson agreed that it was futile to examine children's refractions unless the accommodation had been paralysed by atropine. Some years ago he examined 6,000 eyes, under the Poor Law, in children ranging from 18 months to 18 years of age. In these he found myopia present in 6.68 per cent. That was not very different from Mr. Harman's figures when the different range of ages was considered. He agreed that among the poor children of this country myopia was not of serious frequency. In his own figures, the females were almost twice as much subject to myopia as were the males. He agreed in ascribing this to their employment in indoor work and lack of healthy exercise. Mr. Ernest Clarke said that although the subject was a tempting one, he would confine himself to reiterating what Mr. Stephenson had said as to the great importance of Mr. Harman insisting on the use of a cycloplegic. In default thereof, statistics concerning the refraction of young people, such as were commonly published, were useless.

LIVERPOOL MEDICAL INSTITUTION.

Thursday, April 22nd, 1909,

Mr. T. H. Bickerton, President, in the Chair.

Amblyopia.

Dr. A. A. Bradburne, in a note on amblyopia ex anopsia, dealt with that type found in conjunction with high degrees of refractive error. He considered the cause to be a cerebral defect, and based his treatment on that theory. One of his cases, a boy aged 11 years, who had in six months' special training recovered vision from $\frac{5}{60}$ to $\frac{6}{5}$ or Jaeger 1. He considered that want of success in treatment was usually due to the defect being a complex one, the visual act depending on several centres. Mr. Nimmo Walker advocated the whole-time covering of the non-squinting eye until the vision of the squinting eye became equal to that of the other. This was possible in the majority of cases if taken early enough.

Intussusception.

Mr. R. C. Dun, in a note on intussusception, based on an analysis of 73 cases, expressed himself as in favour of irrigation, which should be followed, if necessary, by immediate section. He had always used ether as the anaesthetic during operation.

Diagnosis of Syphilis.

Dr. Wilson, in a paper on the serum diagnosis of syphilis, contrasted the value of Wassermann's and Noguchi's tests in a series of trials. Using Wassermann, 23 results were positive out of 30 cases. Of 20 controls 3 were positive, but in none of these could the possibility of syphilis be excluded. With Noguchi 40 out of 52 cases were positive, also 3 out of 25 controls. Out of 30 cases submitted to both tests, 22 were positive with both; 4 negative with both. Two were positive with Wassermann and negative with Noguchi. Two were negative with Wassermann and positive with Noguchi. The opinion expressed was that Wassermann, although the more complicated of the two, was the more reliable. Dr. Ernest Glynn referred to the fact that some cases of cancer growth gave the Wassermann reaction, and that guinea-pig's heart was as suitable an antigen as syphilitic liver. The serum principle has been successfully employed in the diagnosis of typhoid and gonorrhoea.

Thursday, April 29th, 1909.

Mr. T. H. Bickerton, President, in the Chair.

The Treatment of Tetanus.

Dr. Lloyd Roberts reported a case of tetanus which had recovered under treatment with injections of carbolic acid and of antitetanic serum. The disease followed an injury to the hand from a circular saw. Symptoms appeared ten days after the accident, and treatment was commenced on the sixth day of the disease. On the fourth and fifth day the symptoms had rapidly become more severe, and on the sixth day there was marked trismus, etc. The patient received 10 c.cm. of serum every twelve hours, and 15 minims of a 4 per cent. solution of carbolic acid every three hours for one day, and subsequently every two hours. On the second day of treatment the disease appeared to be arrested, and the patient was well twenty days later. Twenty-six injections of serum and 236 injections of carbolic were given. The favourable result was attributed to the carbolic rather than to the serum.

Intraspinal Tumours.

Dr. John Owen and Mr. Douglas-Crawford read a note on a case of intraspinal tumour which they had had under their care. It was localized at the eighth dorsal segment, and was successfully removed, the patient being shown at the meeting. They hoped to publish a full account of the case later. Dr. W. B. Warrington discussed the rarity of these cases, and urged the importance of physicians having sufficient faith in their diagnosis to urge an operation.

Meningitis.

Drs. Marsh and O. T. Williams read a paper on meningococcic meningitis in children. They referred to the importance of lumbar puncture in the diagnosis of

tuberculous meningitis from other types of the disease. In the last 14 cases of tuberculous meningitis they had recovered the tubercle bacillus from the cerebro-spinal fluid. Four cases of tuberculous meningitis with secondary meningococcic infection were described in detail. The use of Flexner's serum had reduced the mortality from between 70 and 80 to 29.6 per cent. In children under 2 years the mortality was 42.4 per cent. in 59 cases, and in these the higher mortality was amongst those not treated until the seventh day of the disease. The serum was described and its effect both on the organisms and the cytology of the fluid; being bactericidal and only slightly antitoxic, the serum must be injected into the spinal canal. Fourteen cases of cerebro-spinal meningitis were considered. They varied in age from 3 months to 4 years, and 7 recovered. Three cases treated in the first few days of illness all recovered. The amount of serum used in each case varied from 10 c.cm. up to 130 c.cm., and the number of injections from 1 to 5. In infants they advised small doses of 10 to 15 c.cm. Dr. Flexner confirmed this view. In older children they followed Dunn of Boston, and gave 30 c.cm. on four successive days, the results upon symptoms and the fluid guiding their future procedure. They considered that this serum in early cases promised extremely good results, and even in later cases it improved the prognosis. Dr. OWEN referred to 1 case he had treated with Flexner with satisfactory results. Dr. GULLAN referred to 2; in 1 the fluid was not typical, nor was the diplococcus found. The patient recovered with Flexner. The second case, a girl of 18, had been ill a fortnight. After the first injection the patient passed into a state of coma, and, in spite of further lumbar punctures and injections, died. Dr. JOHN HAY referred to the occasional difficulty of differentiating in certain cases between acidosis and meningitis, and related a case illustrating the point.

GLASGOW SOUTHERN MEDICAL SOCIETY.—At a meeting on April 29th, Dr. PEDEN in the chair, Dr. ALEX. MCLENNAN, in a paper on the newer methods of *Treatment of surgical sepsis*, described the present position of treatment by serums. Such serums, whether administered per os, per rectum, or per cutem, might be simple or antitoxic. As far as antitoxins were concerned, subcutaneous and intravenous methods in use were alike in efficacy, but this might not be so with reference to the other constituents of the serum. Oral or rectal administration was becoming more popular. Either method had been experimentally proved to be correct, as most of the known protective substances passed through the gastro-intestinal mucous membrane. Paton's advocacy of the oral administration of antidiphtheria serum was now receiving support when employed for diphtheria and against sepsis. The serum might be dried, prescribed with other substances, or only partly concentrated. It might be given in pill form or in capsule. The uncertain action of the antiserum was probably due to the specificity of the antitoxin. Antidiphtheria serum contained, according to Paton and others, substances besides antitoxin which were antagonistic to a variety of pathogenic organisms. According to Paton, this was because the serum contained an antiproteolytic ferment, and, according to Metchnikoff, what he called "stimulin." Antidiphtheria serum was first employed locally by Paton. Ordinary serum concentrated was now applied to wounds or injected into abscess cavities after aspiration of pus. The action was explained on account of the antiproteolytic ferment contained in such serums. Ascitic and hydrocele fluids were rich in such antiferment. Cold abscesses, on the other hand, were wanting in proteolytic ferment, and here tryptic ferment could be used for injection. As regards the older methods, the cardinal principle was still the evacuation of pus and the drainage away of the exudate with its cause. The common mistake in the early stage of sepsis was to regard sedatives as treatment. The sphere of antiseptics was rather prophylactic than curative, so that the choice of such an antiseptic for dressing or douching was of minor importance. Dr. JOHN PATON, in a paper discussing the *Treatment of sepsis* by vaccines and Bier's hyperaemia, said he regarded the former as of little practical value, and pointed out that theoretically it should be able to cure typhoid carriers. A person's opsonic index also might be low as much because his immunizing machinery had been used up by innumerable recurrent doses of vaccine from the source of his trouble as from any other reason. He had used Bier's passive hyperaemia in many cases of sepsis with excellent results. He strongly advocated this treatment as being simple, effective, and capable of being used in most of the forms of sepsis generally met with. Dr. ANDERSON considered that vaccines, though not of much practical value at present, were likely to be of greater use in the future. Dr. DUNLOP, in criticizing Dr. McLennan's paper, considered that the value of antidiphtheria serum was much overrated; personally he had no faith in it. Dr. PEDEN, in proposing a vote of thanks to the speakers, advocated a more general use of hyperaemia in septic cases.

ROYAL SOCIETY.—At an ordinary meeting on April 22nd, Sir ARCHIBALD GEIKIE, K.C.B., President, in the chair, Professor KARL PEARSON, F.R.S., read two papers: (1) On the theory of *Ancestral contributions in heredity*, and (2) on the *Ancestral gametic correlations* of a Mendelian population mating at random. The purpose of the two papers was to place in a somewhat clearer light the relationship of the biometric to the Mendelian standpoint. The law of ancestral heredity involved the following three points: (*a*) The linearity of the regression of offspring on any ancestor; (*b*) the diminution of the ancestral correlations in a geometrical progression; and (*c*) the determination of the probable character of the offspring when the mating was at random by the multiple regression formula. It was shown, in a memoir of 1896, that when the ancestral correlations were of the type ρ, ρ^2, ρ^3 . . . then the character of the offspring depended only on the characters of the two parents and ancestry need not be considered. It was shown later that (*a*) and (*b*) held for a generalized Mendelian population, for the *somatic* characters, but that the somatic correlations were not of the type ρ, ρ^2, ρ^3 . . . and accordingly that ancestry in the biometrician's sense did matter even in a population following the simplest Mendelian formula, providing the mating was at random. A recent paper in the *Proceedings of the Royal Society* might be interpreted as meaning that the law of ancestral heredity did not apply to a Mendelian population. In the first of the above papers Professor Pearson indicated how in a population originally consisting of p dominants, s recessives, and q hybrids, mating at random, the percentage of the number of dominants in the offspring increased with the number of dominants in the grandparentage, and this was true in the case of any grade of ancestors, whatever be p, q, and s. In the second paper he turned from the somatic to the gametic correlations, which were not discussed in the earlier memoirs, and showed that the gametic correlations form a series of the character ρ, ρ^2, ρ^3 . . .; in other words, a knowledge of the gametic character of the parents makes a knowledge of the gametic character of the ancestry unnecessary. Apart from symbols this must be a truism, because the offspring arises solely from the gametes of the parents. The Mendelian *gametic* correlations, whatever be the mixture of protogenic, allogenic, and heterogenic elements in the freely mating population, take the same values—that is, 0.5, 0.25, 0.125, etc., diminishing one-half with each ancestral grade. These *gametic* correlations were much nearer to the values obtained by biometric investigations for the *somatic* correlations, the theoretical Mendelian somatic correlations being considerably too small. It would thus appear that the Mendelian gametic correlations accurately obey the fundamental conceptions of the law of ancestral heredity, so that the only real outstanding antinomy lay in the principle of absolute dominance. The correlations found biometrically suggested that there was a closer relation between the gametic and somatic constitution—at least for certain characters in the species investigated—than was represented by the first Mendelian principle of absolute dominance.

ON the initiative of Dr. Augagneur, Governor-General of Madagascar, a decree has recently been passed regulating the importation, sale, and keeping of opium in the colony. A decree was passed on August 31st, 1908, prohibiting opium-smoking dens, but it was found that without strict control over the introduction of the drug the enactment was likely to prove a dead letter.

Reviews.

A TEXTBOOK OF PATHOLOGY.

Professor Adami's bulky *General Pathology*, which forms the first volume of his *Principles of Pathology*,[1] distinguishes itself from many books bearing similar titles by its independence of thought and originality of treatment. There is a refreshing atmosphere of personality about it all. The author takes up the problems of pathology as they present themselves to his own mind, sets out the facts which he finds important or interesting, and then presents the conclusions which appear to him to be warrantable. He is more interested in the elucidation of general principles than in elaborate accumulations of data, and by displaying the workings of his own mind in his effort to unravel fundamental laws he provides an example of how pathological problems ought to be studied, which will be particularly helpful to the reader desirous of seriously devoting himself to the science.

To understand pathology it is necessary to commence with physiological principles, and therefore Professor Adami devotes the first section of his book to the morphology, chemistry, and biology of the cell. This method of approaching his subject is undoubtedly correct from the scientific standpoint, though it adds greatly to the bulk of the volume. It makes us realize that we cannot hope to advance in pathology until we have mastered not merely the elements of physiology but its latest and most intricate developments. The minute details of cytological research, the organic chemistry of the complex compounds which form the basis of living matter, and the laws of development and inheritance, constitute three wide fields of knowledge, to each of which a man may well devote the whole of his energies; but the pathologist is expected to be familiar with them all, as part of his preliminary equipment for the investigation of morbid processes. Professor Adami's account of these "Prolegomena" to pathology is very condensed, but it is much more than a mere epitome of other people's work; it bears the impress of conscientious study and a matured capacity for appreciating the essentials of permanent value amongst a perplexing and almost overwhelming mass of experimental data.

Professor Adami conceives it to be his mission to bring about a closer union between physiology and pathology, and, in particular, to reinterpret pathological data in the light of recent research upon the properties of normal tissue. He says:

> Physiology and pathology have for the last seventy-five years, at least, been divorced to this extent, that they have undergone development under separate influences. Under the influence more particularly of Ludwig and his pupils physiological research has been directed to the study of organs and tissues. The organ as a whole has been taken into account. . . . It is under the influence of another great master (Virchow) that modern pathology has been developed. His teaching was based upon exact study of diseased organs and the correlation between gross and microscopic appearances. It was largely histological, and, as a result, mass effects were followed back to the disturbances in the individual cells composing the tissue. In place of an organ, or tissue pathology, there was developed a "cellular pathology."

But it is recognized that the methods pursued by Virchow are insufficient for the requirements of modern pathology. Microscopic examinations of morbid tissues must be supplemented by experimental methods, for the initiation of which we are mainly indebted to the physiologist; the rapid advances of bacteriological knowledge have to be reckoned with, and, most especially, there is the vast field of work on immunity which has to be brought into perspective and correlated with other branches of pathology. To bring into focus the many and diverse aspects which are presented by the science of disease, to systematize them, and to unravel the underlying principles, this is the task which Professor Adami has set himself. It has not been a light undertaking; but the twelve years which, he tells us, he has devoted to the work have been well spent, and have resulted in the production of a work conspicuous for its broad grasp of general principles and comparable, in many respects, to the pre-eminently philosophical treatise on physiology by the late Sir Michael Foster.

Commencing with the biology of the cell, this first volume goes on to consider the causes of disease, inflammation, the reactive processes associated with immunity, and the characteristics and classification of new growths and other tissue changes. In dealing with the causes of disease the author devotes much space, perhaps more than is necessary, to abnormalities of the fetus, and provides a very full collection of illustrations representing various types of monstrosities. His treatment of the subject of inflammation is excellent, but his opinions are too well known to require detailed discussion. His classification of new growths is very elaborate, and it may be doubted whether it will gain general acceptance; but it must at least be admitted that it is a serious attempt at scientific classification and in that respect preferable to the older, vaguer, and more familiar nomenclature. The various theories of neoplasia, including the author's "habit of growth" hypothesis, are impartially presented: and if the amount of new or important information to be elucidated from them is relatively small that is not the fault of the writer but is attributable to the obscurity in which the cancer problem is still involved.

[1] Oxford Medical Publications. *The Principles of Pathology*. By J. George Adami, M.A., M.D., LL.D., F.R.S. Vol. I, *General Pathology*. London: Henry Frowde, and Hodder and Stoughton. 1909. (Roy. 8vo, pp. 948, 322 engravings and 16 plates. 30s.)

APRAXIA.

Dr. Dromard[2] has written an interesting and in places illuminating book, which is not confined to the physiognomy of the insane, but includes also gesture, attitude and other forms of self-expression. The author discards for this purpose all the anomalies of conformation, asymmetries and other morphological characters so frequently exhibited by the insane and other so-called degenerates, and restricts himself to departures from the normal in intellectual, affective and volitional expression in the insane. The author does not, however, consider as abnormal in function—and this is of first importance in his treatment of the subject—the various characteristic expressive phenomena met with in insane people, so long as they are in harmony with, or equivalent to, the mental states from which they spring; that is, in all of the cases—and this, naturally, includes a large proportion of the insane—in which the modifications of expression result directly and strictly from modifications of the emotional life, the function of expression is considered to be intact. This, of course, considerably narrows the field, though what remains is still sufficiently great and, as Dr. Dromard's work shows, worthy of the most careful study. Thus, after showing how disorders of expression may depend upon defective adaptation—that is, when the play of face or the gesture does not adequately express the corresponding idea or emotion—or upon disordered function, where the expression in itself shows a lack of harmony and homogeneity in its constituent parts, the author considers under the head of disorders of voluntary or ideative expression: apraxia; the hypermimia of substitution; mannerism and puerilism; neologism; stereotypy and echokinesis; and under disorders of involuntary or emotional expression: paraminia; spasmodic expression, and dissociated expression. Taking apraxia (or the incapacity to perform a movement conformably to the end proposed, motility being preserved and presenting no obstruction to its proper performance) as paradigmatic of the author's exposition of his subject, this is considered under the heads of—

1. *Motor apraxia*, which may be brought about either (*a*) by the loss of kinaesthetic representation in the senso-motorium; or (*b*) by the rupture of connexions between the senso-motorium concerned with motor innervation and the parts of the cortex involved in elaboration of ideas of movement (transcortical apraxia.)
2. *Ideational apraxia* (ideo-motor apraxia), when the disorder resides in the superior psychic function, attention, memory, association, etc., and
3. *Sensory apraxia*, or false apraxia, corresponding to the asymbolic of Wernicke and the agnosie of Freud, due either to the loss of memory images or rupture of the connexions between these and new sensory impressions.

Obviously, in this last group the motor result may be correct in itself, responding adequately to perceptions which exist, however faulty; hence the use of the term "false apraxia" by the author. The term "apraxia" has

[2] *La Mimique chez les Aliénés*. By Dr. G. Dromard. Paris: Félix Alcan. 1908. (Cr. 8vo, pp. 284. Fr. 4.)

thus for Dr. Dromard, a wide application. "Ideational apraxia," for instance, includes that due to failure of voluntary attention before the execution of any act, giving rise to many acts which have been variously ascribed to amnesic apraxia, "psychic blocking," "blocking of the will," etc., and also some forms of perseveration and flight of ideas. Another form of ideational apraxia is described by Dr. Dromard as due to interruption or to substitution during the course of execution of an act, and a third form as due to a faulty distribution of the representations of attention or the components of these representations. Ideational apraxia is thus entirely a disorder of intra-psychic processes whose diagnostic features it is important to recognize. The distinguishing features as given by Dr. Dromard are as follows: (*a*) Motor apraxia has a segmentary distribution, affecting particular motor levels and is rarely generalized; ideational apraxia, on the other hand, affects the movements of all parts of the body without distinction. (*b*) Motor apraxia is exhibited only in simple acts; ideational apraxia in movements somewhat complicated. (*c*) Motor apraxia appears generally in the imitation of movements; ideational apraxia in this form but rarely. (*d*) Amorphous movements and movements of substitution of a flagrant or a coarse character distinguish motor rather than ideational apraxia. Lastly, a detailed psychological examination of the patient, as a rule, reveals explanatory disorders in the case of the ideational apraxia but not in motor apraxia. The author's treatment of apraxia has been outlined here as an illustration of the method of pyschological analysis sustained throughout the following chapters. The book is a valuable addition to the literature of expression in the insane. Its methodical classification furnishes many aids to diagnosis, helps to relate types of expression to corresponding structural cerebral disease according to the levels affected, and should undoubtedly facilitate the detection of the simulation and dissimulation of mental disease.

NEUROLOGY.

DR. R. T. WILLIAMSON'S book on *Diseases of the Spinal Cord*,[3] dedicated to the past and present students of the Manchester Medical School, is based on notes of lectures delivered at that school during the last fifteen years. The main adverse criticism that suggests itself is that the treatment of the subject is slight; considering, however, that the work is not intended, as the author states, to furnish an exhaustive account of spinal diseases, and considering the form and scope of its fellows in the series of Oxford Medical Publications, that criticism may be really rather praise than blame. The book, then, is a really good one. It is well balanced and sound in its teaching. On controverted points—on pathogenesis, for example—it gives a fair statement of the conflicting views of different schools, and then, in what may be considered a too modest way, gives its own judgement, and, as many well able to decide will think, generally on the right side. It is thoroughly up-to-date, including not only recent advances in the clinical facts of cases of nervous disease, but also such matters as the use of lumbar puncture in diagnosis and Frenkel's method of treating ataxia. It is practical, giving ample space to differential diagnosis and to such treatment as nervous diseases are susceptible to, including the contribution of orthopaedic surgery to the matter. It is well and helpfully illustrated with clinical photographs, anatomical and physiological diagrams, and pathological microphotographs. It is plainly and well written. The minor errors it contains suggest somewhat rapid production of the printed page; a lesion of a spinal posterior root, for example, is said to cause anaesthesia in the distribution of that root, a statement combated, on the evidence of Professor Sherrington, on a subsequent page; peripheral neuritis is said to be easily confused in diagnosis with anterior poliomyelitis, a statement only true if multiple and not terminal neuritis is meant; a diagram is given representing cerebral anaesthesia in the form of a deeply shaded gauntlet, but the area shown could not, from its shape, be subcortical in origin, and if cortical, as the text suggests, it would not be absolute, and should be differently shaded. There is a welcome appendix dealing with the methods for the pathological examination of the spinal cord. There are, in short, many textbooks on the same subject dealing more systematically with the subject, but there are few likely to be more practically useful to the medical practitioner.

[3] *Diseases of the Spinal Cord.* By R. T. Williamson, M.D., F.R.C.P. Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1908. (Roy. 8vo, pp. 444. 15s.)

Dr. ALFRED GORDON, whose name is known in association with the recognition of the paradoxical plantar reflex—an earlier sign, it is claimed, of interference with the pyramidal tracts than Babinski's phenomenon—has written a short and thoroughly sound textbook on *Diseases of the Nervous System*.[4] As he says, to both general practitioner and medical student neurology has always appeared a difficult subject, and their continuous complaint has been that they could not find any book which would give them a plain and practical account of diseases of the nervous system. Whether this charge be true or not, Dr. Gordon has written a book which, to a large extent, refutes it, though there may be several others equally good in the English tongue published, either in America or in this country. The book is a good one, and it may safely be used by the tiro. On the other hand, it and its fellows are of very little use, except in regard to cases which may be called typical, or, at any rate, which are capable of being pigeon-holed. Neurology, above all other branches of medicine, is largely concerned with atypical cases, and hence the special value of the larger book. It is only fair to say, however, that this book contains chapters on the anatomy and physiology of the central nervous system and on the methods of examination for the diagnosis of nervous diseases, so that it is, in a sense, complete in itself. It is a trustworthy book, and the most unfavourable criticism that suggests itself is that it is too large for a primer of neurology and not large enough for final reference.

[4] *Diseases of the Nervous System.* By Alfred Gordon, A.M., M.D.Paris. London: H. K. Lewis. 1908. (Roy. 8vo, pp. 499, illustrations 136. 12s. 6d.)

PAIN IN VISCERAL DISEASE.

THE value of pain as a guide to diagnosis is always difficult to assess. It is probable that every practitioner of medicine or surgery forms his own opinions on the subject, and acts upon them without much reference to the written law. But the manifestations of pain are so extraordinarily varied, that a systematic examination of them recently issued by Dr. RUDOLPH SCHMIDT of Vienna, and translated by Drs. VOGEL and ZINSSER of Columbia University,[5] cannot fail to be of use as a work of reference, and as a reminder of the diagnostic importance of pain, even to those who might not in all cases agree with the opinions of the writer as to its causation.

The book deals with the interpretation of pain produced by internal diseases, and is prefaced by some useful reflections upon pain in general, followed by chapters on the various influences such as position, motion, pressure, food, etc., by which pain may be modified. The topography of pain, and its quality and times of occurrence, are also examined, and special attention is then directed to the pains which may accompany disorder of the various systems—nervous, digestive, urinary, etc.

The book presents a very full account of most of the aches and pains to which humanity is liable, and errs only in its lack of simplicity of expression, and in its tendency to repetition of detail. It would gain in practical value by closer compression, and by the omission of much that can only be matter of indefinite speculation, but it contains a great deal worthy of careful reconsideration, particularly in relation to the pains of colic from various causes. The final chapter is devoted to an illustrated exposition of Dr. Henry Head's observations on cutaneous tenderness in visceral disease.

[5] *Pain.* By Dr. Rudolf Schmidt, Vienna. Translated and edited by Dr. Karl Vogel and Dr. Hans Zinsser, Columbia University. London: T. Fisher Unwin. 1908. (Demy 8vo, pp. 326. 12s. 6d.)

ANIMAL PARASITES.

BRAUN, in collaboration with LÜHE, has compiled a volume intended to serve as a guide to the examination of the animal parasites of man and domestic animals[6] for

[6] *Leitfaden zur Untersuchung der tierischen Parasiten des Menschen und der Haustiere, für Studierende, Aerzte und Tieraerzte.* Von Dr. M. Braun, O. Ö. Professor der Zoologie und Vergl. Anatomie und Direktor des Zoolog.-Museums in Königsberg I. P.R., geh. Regierungsrat, und Dr. M. Lühe, Privatdozent und I. Assistant des Zoolog.-Museums in Königsberg I. P.R. Würzburg: Curt Kabitsch (A. Stuber's Verlag). 1909. (Sup. roy. 8vo, pp. 194. 100 Abbildungen im Text. M. 5.20.)

students, doctors, and veterinary surgeons. A glance at the general style, printing, diagrams, and text of the work show at once that it is based upon, or might even be termed a synopsis of, Braun's well-known work on the animal parasites of man, with some additions. It is divided into three parts—(1) Protozoa, (2) Helminthes, (3) Arthropoda, Dr. Lühe being responsible for the first part and Professor Braun for the other two. It is apparently fashionable now to change or invent new classifications for different groups of the animal kingdom, and Dr. Lühe keeps up to date by introducing considerable changes into the old and time-honoured classification of the protozoa. The most important of these are that he makes the haemoflagellates and haemosporidia the third order (binucleata) of the class flagellata, that he obliterates the class sporozoa as such, its place being taken by the class neosporidia with—in addition to the micro-, myxo-, and sarco-sporidia—one new order—the actinomyxidia, and by the class telosporidia, containing the coccidia and gregarinida. These last changes are not so much to be quarrelled with, but how any one, protozoologist or other, can believe that the trypanosomes and malarial parasites are so near each other as to be properly comprehended in one order is past comprehension. Schaudinn's unconfirmed work on the haemoproteus (the old halteridium) is again no doubt responsible. It ought either to be verified once and for all or finally swept away. It has misled too many of the unwary already. The helminthological part of the book contains some useful information on the preservation of the different worms and their eggs, but many well-known and useful methods are omitted. Life-histories of the dog taenia, *T. marginata*, and others are valuable because good short accounts are in many instances very difficult to obtain. All things considered, however, the work, though interesting in many particulars, falls short of expectation; it is not full enough for advanced students of the subject, and as a mere narrative for non-helminthological and protozoological people it is too full and scientific. It is rather hard to understand the necessity for its publication, especially when it is remembered how fully the animal parasites of man have been dealt with by one of the authors. Still, as a guide or introduction to this larger work, it may prove of use.

TICKS.

THE subject of ticks had been little studied, at least by medical men, until it came to be established that these parasites might spread disease from animal to animal, or even to man. This fact having been proved, a book on these insects was clearly required, and Dr. NUTTALL, in conjunction with Messrs. WARBURTON, COOPER, and ROBINSON, has done well to provide *Ticks: A Monograph of the Ixodoidea*.[7] At first the idea was to publish a full account of the ticks as a complete volume, but for various reasons the authors have decided to bring the work out in parts; these will be complete in themselves, but are designed to form a volume of about 500 pages, when all have been published, and it is hoped that they will be ready in about a year. Part I deals with the Argasidae, and is divided into two sections: (1) the classification of the Argasidae; (2) the general biology of the Argasidae, the effects of their bites, their relation to the spread of disease, etc. For those unacquainted with the subject it will be sufficient to state that the ticks are classified as follows: Superfamily Ixodoidea: Family I, Argasidae. Family II, Ixodidae. It is with the first of these, then, that the volume deals. Classification is always a tedious and difficult piece of work, and it seems uncertain yet how many genera the family Argasidae contains, but the usual plan of dividing it into Argas and Ornithodorus is maintained. Six well-established species, according to the authors, are found in the first, eleven in the second. How long this will last no one can say, as it is probable that in the course of time, as attention is directed to the subject, many more ticks will be discovered either specifically or generically distinct. Still it is to be hoped that the classification will never fall into the chaotic condition reached in the case of the mosquitos. The part of Section II which deals with the relation of the ticks to the spread of disease is interesting; but again, the subject is largely in its infancy, and the same is true with regard to many points in the life-history. It is not quite clear when or where in the book the anatomy of these parasites is to be discussed, a note at the foot of page 8 simply stating that the internal anatomy will be considered in the general introduction to the completed volume. It might, perhaps, have been better to have taken up the anatomy, external and internal, first, then to have dealt with classification, and lastly with biological points, and the relation of the insects to disease, etc. When the work is complete, these matters will no doubt smooth themselves out, and too much praise cannot be given to Dr. Nuttall and his collaborators for taking up this difficult and somewhat thankless task.

[7] *Ticks: A Monograph of the Ixodoidea.* By George H. F. Nuttall, M.A., M.D., Ph.D., Sc.D., F.R.S., Fellow of Magdalene College, Quick Professor of Biology in the University of Cambridge; Cecil Warburton, M.A., F.Z.S., Christ's College, Zoologist to the Royal Agricultural Society; W. F. Cooper, B.A., F.Z.S., F.L.S.; and L. E. Robinson, A.R.C.Sc.Lond. Part I, Argasidae: October, 1908. Cambridge: At the University Press; London: Cambridge University Press Warehouse, and H. K. Lewis; New York: G. P. Putnam's Sons; Leipzig: Brockhaus; Berlin: A. Asher and Co. Bombay and Calcutta: Macmillan and Co., Ltd. (Imp. 8vo, pp. 150, figs. 116, pl. 3. 5s.)

DERMATOLOGY.

WORKS on diseases of the skin follow one another with such rapidity and have such a family likeness that it is difficult to deal with them in a critical as opposed to an expository manner. One of the latest books is by Dr. SCHAMBERG, of Philadelphia;[8] but in this case, following the example of the old Vienna school, the eruptive fevers are included, and their morbid cutaneous manifestations thoroughly discussed. Although the specific fevers are part and parcel of general medicine, yet it cannot be overlooked that a comparison of their rashes with skin diseases proper is of importance in practice. The first part of the book is devoted to diseases of the skin, the various conditions being dealt with in a very succinct, and, from the point of view of dermatology, in all too brief a manner. In the case of pemphigus acutus, the author does not allude to the severe febrile bullous eruption in butchers, which should have found a place in a work such as this, one which includes eruptive fevers in its title. The term "tubercular" as applied to certain syphilides and to a clinical form of leprosy is not so appropriate as "nodular." The second part, dealing with the eruptive fevers, is well done, and the discussion of differential diagnosis can be recommended, for not only are the specific rashes carefully described, but the aberrant forms and the various prodromal and intercurrent eruptions are also dealt with. The book is profusely and well illustrated, and reflects credit on the publishers.

Professor Dr. S. RÓNA, in a short work on dermatological propaedeutics,[9] has attempted to give a preliminary outline of the processes at work in the production of diseases of the skin. The book consists of the substance of a course of lectures, and contains seven chapters. The first chapter, dealing with the various agencies causing damage to the skin, is clear and concise, but needs no special analysis. The chief interest and value of the book lies in the second, third, and fourth chapters, which deal with constitutional peculiarities and acute and chronic inflammation. Considering the difficulty of giving anything like a complete review of such a complicated subject within a small space, the author has certainly achieved a marked success. The principles of general pathology are well explained, and the opinions of such authors as Marchand and Maximow discussed. The last three chapters are devoted to the application of the knowledge acquired from the first four to the special domain of cutaneous medicine, and a careful perusal of the whole book would repay not only those commencing the study of dermatology, but also those whose early training was undergone before pathology had attained its present importance in medicine.

[8] *Diseases of the Skin and the Eruptive Fevers.* By Jay Frank Schamberg, A.B., M.D. Philadelphia and London: W. B. Saunders Company. 1908. (Med. 8vo, pp. 534, 204 illustrations. 13s.)

[9] *Dermatologische Propädeutik.* Von Professor Dr. S. Róna. Berlin: Julius Springer. 1909. (Demy 8vo, pp. 151.)

NOTES ON BOOKS.

Indian Plants and Drugs[1] seem to be a favourite theme with Indian medical authors. Mr. K. M. NADKARNI, who has recently published a book on this subject, does not appear to possess a medical qualification; but from the statement that he has "cured cases with marvellous beneficial results in competition with the Western allopathic system," it is evident that he engages in medical practice. This treatise contains descriptions of 419 plants and drugs arranged alphabetically according to their botanical names. In each cases the synonyms, habitat, properties, and uses of native Indian preparations are given. Some of the latter are marvellous farragos, many of them covering half a page. The shortest we have met with is the direction that "as a purgative castor-oil is recommended to be taken with cow's urine." The article on cinchona is only one page long, and quinine is recommended to be administered in agues in doses of "1 to 2 grains three times a day." There is an "index of diseases and remedies," which is crude and complicated. "Fevers" constitutes one entry, which includes about fifty references, among which "cinchona" is included. Under "Syphilis" no mention is made of mercury, and under "Dysentery" none of ipecacuanha or potassium sulphate. Altogether the compilation hardly redeems the promises of utility advanced by the author in his preface.

We have received a copy of a new edition of the *Students' Pocket Prescriber*,[2] by Dr. H. AUBREY HUSBAND. It is a book of vest-pocket size, containing some 397 thoroughly constructed prescriptions and a short preface dealing with the art of prescribing. The counsel given in this seems for the most part sound, but we are not sure that it is a universal rule that women require smaller doses of purgatives than men, or that the fact that in marshy districts people take large doses of quinine is really proof of the modifying influence of climate on therapeutic action.

[1] *Indian Plants and Drugs, with their Medical Properties and Uses.* By K. M. Nadkarni, F.S.Sc.L.A.Lond. Madras: Norton and Co. 1908. (Cr. 8vo, pp. 450.)

[2] *The Students' Pocket Prescriber.* By H. Aubrey Husband, M.B., B.Sc. Edinburgh: E. and S. Livingstone. 1909. Pp. 175. (1s. 6d.)

HYGIENIC AND SANITARY APPLIANCES.

Sterilizable School Boxes.

THE danger of allowing the indiscriminate use of pencils and other writing utensils in elementary schools has long been recognized, especially in connexion with the spread of diphtheria; it has led to the more or less complete abolition of school slates, and various devices have been suggested for keeping each child's apparatus separate. Dr. W. Lloyd Edwards, school medical officer to the Barry education authority, has sent us a sample of a box made for that authority by the South Wales Canister Company, Swansea. It is a long, thin, flat, tin box, with places for rubber, pencils, and brushes, and there is a depression on the lid, which is hinged, for a label with the child's name. The box is a very practical invention, and could, we presume, be supplied at a small cost.

A box with the same object and of a similar material is made by Mr. George W. Jelfs, Watkin Works, Bromsgrove, near Birmingham, and is known as the Watkin hygienic pencil-box. It has a sliding lid, and holds a 9-in. ruler, pencil, rubber, brush, and compass; the price is 3d. each net. A somewhat more ambitious contrivance is a scholar's material box made of tin. The lid of the box may be fixed to the under side of the desk by screws, for which holes are prepared in the lid. The top sides of the box are bent outwards and slide into grooves in the lid; the box may be opened and shut like an ordinary drawer, or, if preferred, the bottom of the box may be fixed to a shelf underneath the school desk by screws, and the lid then slides on and off. This material box, which is retailed at 1s. 6d. net, has separate compartments for reading books, exercise and drawing books, ruler, brush, pencil, etc. The same maker manufactures an adjustable book-cover of stout brown paper with a very glossy surface; it is not likely to collect dust, and when soiled can be burnt; the book-covers cost 12s. to 20s. a gross, according to size.

PROPOSED antivivisectionist legislation has had a set-back in New York State, as at Massachusetts. Two bills have been before the State Legislature; on one the Assembly Committee decided not to report, while on the other the Senate Committee took no action.

Nova et Vetera.

THE MEDICAL JOURNAL OF A HUNDRED YEARS AGO.

THE unreflecting reader of the periodical medical literature of the present day does not realize the richness of the possession which is his. In this month of May, 1909, let him look for a minute or two into the *Medical and Physical Journal* for the corresponding month of 1809. It consists of 88 pages octavo, and, as it was a monthly publication, these pages constituted the whole supply of mental pabulum given by the editors to their readers for May. The publication had been established in 1799, with T. Bradley and F. M. Willich as editors; and, as two volumes appeared each year, this was vol. xxi. It continued under its original title till 1814, when it became the *London Medical and Physical Journal*, and was conducted by Samuel Fothergill. The contents of the May number consisted of some thirteen original articles, most of which take the form of letters to the editors, are not preceded by any indication of the subject with which they are to deal, and carry the writer's name only at the end; these articles, which occupy 62 out of the 88 pages, are followed by 12 pages in which are analysed very fully the articles appearing in the recent number of the *Edinburgh Medical and Surgical Journal;* then comes an editorial of 5 pages on the "Trial of Mr. Angus and subsequent Pamphlets"; then a report (of 3 pages) of the diseases of Edinburgh for March, 1809; then a short Account of Diseases in an Eastern District of London from March 20th to April 20th, 1809; then some Udiometrical, Thermometrical, and Barometrical Statements, by Dr. T. Pole, of Bristol; then an angry letter to the editors, beginning, "Gentlemen," on the subject of vaccination; and the number is brought to a close with some paragraphs of Intelligence, including the statement that "Dr. Adams, having finished his *Inquiry into the Laws of Epidemics*, is at leisure to complete his edition of Mr. Hunter's *Treatise on the Venereal Disease*."

In these parts, which constituted the medical journal of a hundred years ago, the observant reader will recognize most of the departments of a modern periodical; to adopt embryological language, for the nonce, their *anlagen* were in existence in 1809, but, as one sees, they have developed wonderfully since then.

Let us look more in detail at one or two of the contents of this journal. The place of honour is given to a contribution from the pen of Robert Jackson, M.D., No. 3, Panton Square, London, dated March 20th, 1809. We may note in passing that the practice of adding the writer's address to his communication—which we are, perhaps, inclined to associate with transatlantic medical journalism—was common, if not general, among our medical ancestors in London a hundred years ago; we also observe that in those early days manuscript was not allowed to lie long wasting its sweetness in the editorial cupboard.

Dr. Jackson's article, which as usual is without a title, begins well. We read:

> Gentlemen, As you seem always ready to put before the public such hints or suggestions on medical subjects, as you may receive from persons of credibility and good intention, I am induced to submit to your consideration a short notice of the effects of a remedy which some may perhaps regard as too vulgar to be admitted in the physician's catalogue, or which others may be disposed to disparage, as it is not brought from a foreign country, or does not find a place in the apothecary's shop.

The reader's curiosity cannot fail to be roused and his appetite whetted by these introductory remarks, and the writer does not long keep him in suspense. Dr. Jackson promptly reveals his secret; like an earlier writer, he has a "naked thought" for which he wishes at once to find suitable apparel.

> The spider's web (vulgarly cobweb) is known to many of the common people as a cure for fever and ague; but I believe that few of the regular practitioners have yet employed it on that or any other account.

The secret is out! Then the writer proceeds to say that he got the hint in the year 1800 from the late

Dr. Gillespie of Edinburgh, "a man of great candour and sincerity of character," and that he had himself tried the remedy with the best effect upon "some intermittents" in the army dépôt at Chatham. A Sergeant Anderson's case is mentioned; his ague attacks yielded before the assault of the cobweb pill. Upon a soldier of the Buffs recently returned from the West Indies—it will be remembered that it was in 1809 that Britain captured Martinique and Guadeloupe—a cobweb pill had so marvellous an effect that "in less than a minute he was perfectly tranquil." Other remarkable successes are reported, and it is thought that the usefulness of the remedy may be extended to hydrophobia, "for its tranquillizing effects." There is to be no secrecy; "pure cobweb is to be procured and made into pills, each containing 4 grains." So we see that a hundred years ago the doctors of London were being counselled to fight malaria with the means employed by spiders to capture flies. Now, for the same purpose, we attempt to exterminate the *culex* with our mosquito brigades, or at least try to keep off the mosquitos with our nets. What verdict, we wonder, will the medical journal of 2009 be passing upon our 1909 methods?

The second article is on "Epidemic Measles," by Dr. Ferguson, of Aberdeen. In the course of the paper the writer refers to a personal experience he had. He was examining an abscess on the thigh of a patient suffering from small-pox: he became faint and ill, and in a few days was found to be affected with "violent scarlatina anginosa." He argues that, "from the putrefactive process of small-pox, contagion may be produced which will occasion other infectious diseases." The editors are not inclined to agree with Dr. Ferguson, and courteously but firmly tell him so, in a note at the end of his communication. They say:

> In the interesting account Dr. F. gives of his own case, we should suspect that the disease in his throat, and subsequent efflorescence on his skin, was the effect of putrid matter applied by effluvia to that semicuticular and highly sanguiferous part, the throat.

The observation is, at any rate, of interest (whatever be the explanation) in view of what is now known regarding mixed infection.

There are surgical as well as medical articles in the journal. "Verax" tells of "a nobleman of considerable importance in the State" who had an accident which produced a seriously contused urethra; the treatment, which was successful, is described. Regarding the pseudonymous "Verax," there is a footnote to the effect that the name of the author, "which is highly respectable," is in the possession of the editors. There are also articles on permanent stricture (by Dr. Roberton); on the use of stimulants in burns (by "Philanthropus"), illustrated with a plate showing a bed for nursing such cases; on wounds of the scrotum (by Mr. Scott); and on lockjaw and tetanus (by Mr. Howship). Midwifery is represented by an article on that fertile subject of articles, the use of the forceps; in it the author points out that there are difficulties in the application of the forceps when the child's head is on the perineum! An expression is used in this article which is evidently the equivalent of our modern term, the "caput succedaneum"; the writer calls it the "presenting cone of integuments."

Among the more general papers in the journal are two on the trial of Mr. Angus for murder and on the so-called Liverpool controversy which followed it. An explanation of this matter would occupy too much space; but it was a *cause célèbre* of the time, and we may return to it again. There is an unsigned letter on what the writer calls "A Fraud of Authors." The fraud consists in the publication of second editions of medical works with additions, corrections, and improvements, to the detriment of the purchasers of the first edition. The writer is indignant:

> How, think you, do the purchasers of the first edition feel? Why, that they have been buying a work, and that perhaps at an expence (*sic*) which they could but just afford; and in the short space of a year, or year and half, it is become of scarcely any value. . . . Is this fair to the purchasers of the first edition, who have paid the first compliment to the author, and who by so doing, and by speaking of the work as it merited, (probably) have been the cause of the rapidity with which the first sold. Is it honourable? Is it just?

The writer gives some details, and closes with:

> Pray, Mr. Editors, take up this matter in the behalf of such unfortunate men as myself. . . . I feel grievously hurt.

In a footnote the editors indicate that they publish the letter with hesitation; but as a similar one had appeared in a rival journal, they could not, "without the suspicion of great partiality," refuse it a place. Certainly there was a refreshing frankness and an almost childlike self-revelation in the letters and in the editorial comments on them of the medical journals of a hundred years ago!

THE COMPOSITION OF CERTAIN SECRET REMEDIES.*

XXIV.—RADIUM SALVE.

LONG advertisements have appeared recently in the daily papers of a radium salve stated to have been discovered by Dr. S. Saubermann, who gives an address in Berlin. The salve is sold in this country by a company which describes itself as "manufacturing chemists to the medical profession." We are told in a pamphlet issued by this company that Dr. Saubermann's formula has been embodied and improved upon in the radium salve they sell. It is stated further that the salve is impregnated with the "radium salt in the proportion of 1 in 500,000," a quantity which "must not be exceeded, as otherwise the absorption by the skin and the well-known action of the strong and penetrating rays will do more harm than good." It is described as a remedy for lupus, cancer, and all diseases of the skin, with a bountiful "etc."

The company also sells various other preparations: A medical soap, a blood purifier, and an elixir of life. A certificate purporting to have been given by Dr. Saubermann in December, 1907, states that the ore which the company has acquired was "uranium refuse concentrated from the mines at Joachimsthal." In the advertisement a list is given of "leading scientists on radium," but the advertisers do not go so far as to say that any of them have anything to do with the radium salve. There is also a quotation from our own columns, which we need hardly say had no reference whatever to the salve or its manufacturers.

The salve is "sold at 2s. 9d., 5s., 10s., 20s., and 30s., according to radioactivity." Mr. Frederick Soddy, M.A., Lecturer on Physical Chemistry and Radioactivity in the University of Glasgow, has been good enough to examine the salve for us, and the following is his report:

"I received the two pots of radium salve you sent me, and have examined the radioactivity of the stronger preparation—namely that marked 'Strong, 5s.' The alpha radioactivity of the preparation is just detectable, and is about one-hundredth part of that of uranium. The beta radiation is too feeble to be detected by a sensitive electroscope. For comparison I might mention that the residues from the uranium ore of Joachimsthal, which forms the initial raw material from which radium is extracted, have an alpha radioactivity about four times that of uranium."

* Previous articles of this series were published in the following issues of the BRITISH MEDICAL JOURNAL: 1904, vol. ii, p. 1585; 1906, vol ii, pp. 27, 1645; 1907, vol. i, p. 213; vol. ii, pp. 24, 160, 209, 393, 530, 1653; 1908, vol. i, pp. 833, 942, 1373; vol. ii, pp. 86, 505, 1022, 1110, 1193, 1285, 1566, 1697, 1875; 1909, vol. i, pp. 31, 909

THE fifth International Congress of Medical Electrology and Radiology will be held at Barcelona on September 13th to 18th, 1910.

THE American Proctologic Society will hold its eleventh annual meeting at Atlantic City, New Jersey, this year on June 7th and 8th under the presidency of Dr. George B. Evans of Dayton, Ohio. Among the papers to be read are the treatment of pruritus ani, by Dr. W. M. Beach, and another on the same subject by Dr. T. Chittenden Hill; a consideration of the prophylaxis and treatment of cicatricial rectal stricture, by Dr. Alois B. Graham; the use of spinal anaesthesia in rectal surgery, by Dr. Collier F. Martin; intestinal auto-intoxication: its treatment by irrigation, by Dr. W. L. Dickinson; diseases of the colon and rectum as caused and influenced by pathological conditions of other abdominal and pelvic organs, by Dr. A. Bennett Cooke; the necessity for routine examination of the rectum in intestinal diseases, by Dr. Dwight H. Murray; naevus of the anal region, with report of a case, associated with internal haemorrhoids, by Dr. Lewis H. Adler, of Philadelphia, who is the Secretary-Treasurer of the Society.

THE ROYAL COMMISSION ON THE POOR LAWS AND RELIEF OF DISTRESS.

REPORT ON IRELAND.

THE Royal Commission on the Poor Laws and Relief of Distress issued its report on Ireland on May 3rd. As in the case of the report on England and Wales, it consists of a Majority and a Minority Report, the former occupying eighty-three pages and the latter two and a half. Dr. Downes refrains from signing either report, on the ground that his acquaintance with Irish affairs is insufficient to warrant him in so doing.

In some introductory paragraphs it is pointed out that at the date when the Royal Commission was appointed a number of inquiries by Royal Commissions and parliamentary and departmental committees had recently been conducted, or were actually proceeding, in reference to many subjects which came within the terms of reference of the Commission. It accordingly, while undertaking to consider any serious objections, invited no evidence in reference to the recommendations already made by other bodies, and decided to accept generally these recommendations and the evidence on which they were based unless they were considered to be inconsistent with any general principle advocated as a foundation of the Royal Commission's scheme of Poor Law reform. In this way it was possible to take full advantage of the exhaustive inquiries of the Vice-Regal Commission on Poor Law Reform, which it appeared to the Royal Commission had been received with general approval in Ireland. The Royal Commissioners, however, visited Ireland and heard evidence from Mr. E. Bourke, Senior Inspector of the Irish Local Government Board, in which Irish Poor Laws and their administration were fully explained, with special reference to differences in the system in England and in Ireland. The Medical Commissioner of the Irish Local Government Board, Mr. T. J. Stafford, C.B., F.R.C.S.I., supplied a memorandum on Poor Law dispensary medical relief in Ireland, and gave evidence which was found especially interesting "as the medical dispensary system in Ireland is a more comprehensive system of medical relief for the poor than has existed hitherto in Great Britain." Subcommittees visited various institutions in Dublin and its neighbourhood, and thereafter the Commission divided itself into three bodies to visit workhouses, hospitals, and other institutions, and to attend meetings of boards of guardians. Altogether, about one-third of the unions in Ireland were visited, and a report on these visits is promised in the twenty-eighth volume of the Report of the Royal Commission. The Commission also made enquiries with regard to distress arising from unemployment, a matter not included in the reference of the Vice-Regal Commission. A census of the persons relieved in Ireland on March 31st, 1906, classified by age and physical condition was made, and summary tables are to be printed in Volume XXXI of the Royal Commission's report. The arrangement of the report on Ireland is similar to that of the report on England and Wales, and the recommendations are generally similar.

RECOMMENDATIONS.

They include the abolition of boards of guardians and general workhouses; the appointment of public assistance authorities, the county or county borough being the area of administration and of rating; the continuance of outdoor relief under proper safeguards, and the creation of detention colonies or labour houses under the supervision of the General Prisons Board for the reception of persons not amenable to ordinary discipline, or who neglect or refuse to maintain themselves or their families.

Medical Relief.

With regard to medical relief, the following recommendations are made:

That the present dispensary medical service be a county service under the control of the Public Assistance Authority, and that the areas of the districts, where possible, be enlarged in view of present population.

That county infirmaries, workhouse, and other rate-aided hospitals be co-ordinated, and that medical relief generally be under the management of the Public Assistance Authority, and that a county ambulance system be established.

That a county medical superintendent officer of health be appointed, who shall also discharge the duties of bacteriologist.

That Public Assistance Authorities have power to appoint nurses for nursing in the homes of the necessitous, in the same way as boards of guardians at present appoint midwives.

Children.

The maintenance of children in workhouses should, it is said, no longer be considered a legitimate way of dealing with them, and the Royal Commissioners agree generally with the recommendations of the Vice-Regal Commission with respect to children, strongly advocating the extension of boarding-out, but deprecating any relaxation in the inspection of boarded-out children.

Aged and Infirm.

The Royal Commissioners further recommend that the necessitous aged and infirm be accommodated in a number of specialized institutions, preferably in small homes or almshouses, and that there should be powers of compulsory removal to institutions in the case of sick or feeble old people without friends to take care of them.

Defectives, Epileptics, and Lunatics.

The Royal Commission recommends that the Public Assistance Authority should be authorized to contribute to the maintenance of the deaf, dumb, and blind in institutions, and that a person should not be disfranchised on account of such assistance rendered to a dependant being deaf, dumb, blind, or belonging to any class of the afflicted poor, such as the epileptic, lame, deformed, etc.

Lunatics, idiots, and sane epileptics, it is recommended, should be maintained in asylums or institutions, as advised by the Vice-Regal Commission, and disused workhouses should be used as auxiliary asylums for the purpose.

THE MINORITY REPORT AND ITS OFFICIAL CRITICS.

The Minority Report signed by Prebendary H. Russell Wakefield, Mr. Francis Chandler, J.P., Mr. George Lansbury, and Mrs. Sidney Webb, in which they criticize the Majority Report mainly on the ground that it diverges from the recommendations of the Vice-Regal Commission.

In a memorandum the Bishop of Ross and Sir H. A. Robinson, the members appointed to the Royal Commission specially to represent Ireland, criticize the Minority Report, and after noting that the minority agree with the majority as regards the abolition of boards of guardians and the adoption of county rating for all Poor Law purposes, make the following damaging observations:

"The most important part of the minority's proposals, and that upon which the whole structure of their alternative scheme depends, is that outdoor relief should be taken out of the hands of the elected representatives of the ratepayers or their nominees and entrusted to salaried officers to be appointed by the county councils.

"The various committees of the councils will, it is true, be permitted to submit recommendations for outdoor relief to these paid officials—registrars, as they are styled—but the registrars are to be at liberty to act upon them or to disregard them as they see fit.

"We do not believe that committees in Ireland would be found to take any part in the administration of outdoor relief upon these terms; it would be too much to expect intelligent business men to spend their time investigating applications if they were powerless to ensure relief being given to those who they were satisfied were fit recipients.

"The number of paid officials in Ireland is already a heavy tax on the local ratepayers, and we strongly deprecate the proposal to flood the country with a new class of paid officer, even though the councils are to obtain the compensating advantage of paying for persons of the superior order of intelligence which will enable them to keep the committee straight and correct their blunders in the matter of outdoor relief.

"What would happen in the event of a council electing a registrar who was no better informed than the committee themselves on the subject the authors of the scheme do not appear to have considered.

"The only other point to which we must refer is the solemn warning uttered by the minority against our scheme of reform, on the ground of its being the result of an inquiry as hasty and perfunctory as that which they describe as Sir George Nicholls's 'celebrated scamper' through Ireland in 1837.

"This criticism comes somewhat badly when accompanied by an alternative scheme prepared by four members of the Commission, two of whom did not visit Ireland at all, while the time spent in the country by the only member who accompanied the Commissioners on their visits was even shorter than that occupied by Sir George Nicholls's visit, which on account of its brevity, has called forth such a severe condemnation from the minority."

THE WELLCOME RESEARCH LABORATORIES, KHARTOUM.

Third Report.

The third report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum,[1] contains a wealth of material. The first report, it will be remembered, appeared in 1904, the second in 1906. The new volume is larger and fuller than its predecessors, owing, first, to the growth of the staff; secondly, to the incorporation in it of papers from Sudan officials who have for the most part worked from time to time in the laboratories. In addition, Dr. Leiper, Helminthologist to the London School of Tropical Medicine, describes the helminthes collected by Dr. Wenyon, the travelling pathologist for the year; Mr. Theobald writes on new mosquitos from the Sudan; Dr. Werner of Vienna names the reptiles and poisonous snakes of the Sudan; and Dr. Waterston adds an anthropological report on the late Dr. Pirié's work. Besides contributing papers on trypanosomiasis, piroplasmosis, and spirochaetosis, the Director (Dr. Balfour) and his assistant (Lieutenant R. G. Archibald, R.A.M.C.) give in a supplement a review on some of the recent advances in tropical medicine. Dr. Balfour also gives, in his capacity of medical officer of health, interesting details of the sanitary condition and public health of Khartoum. Sleeping sickness is dealt with by Captain Howard Ensor and Mr. Archibald; kala-azar by Captains Cummins and Bousfield; protozoology by Dr. Wenyon, lent by the London School of Tropical Medicine; economic entomology by Mr. King; chemistry by Mr. Beam; and medical practices and superstitions among the people of Kordofan by Captain Anderson.

Amidst such a very large mass of material, it is impossible here to discuss more than a few points. Dr. Balfour, in his paper on trypanosomiasis, discusses somewhat tentatively a question which has been gradually forcing itself on the minds of those studying these special parasites. Is it justifiable to multiply species of trypanosomes indefinitely as has been done so much of late by Laveran? We say decidedly not, or at least not until there is better proof that they are really different; in this connexion Dr. Balfour notes (page 29) that "Ehrlich, quoted by Browning, does not think that the immunization and subsequent inoculation advocated by Laveran constitutes a sufficient basis." To the open mind it is quite likely that what have been recently termed *Trypanosoma dimorphon*, *T. pecaudi*, *T. soudanense*, and the supposed new trypanosome recently discovered in Zanzibar, are nothing more or less than varieties of or the same parasite as that of "nagana" (*Trypanosoma brucei*), Bruce's original trypanosome.

Another interesting point crops up in Dr. Wenyon's paper, namely, the interpretation of the changes seen in *Leucocytozoon neavei*, and similar parasites. Dr. Wenyon criticizes the description of the leucocytozoon of the grey hawk of the Congo, given by Dutton, Todd, and Tobey, contending that they have been misled in following Schaudinn, who was mistaken in his idea of the relations of the several parts of the parasite and host cell. There is little doubt now that Schaudinn, hurrying on his work on the development of halteridium, and in some other directions, without controls, fell into some confusion, and did not recognize that he was dealing with several different parasites, instead of stages in the development of one. The tendency to hurry work, often to get it ready for a report, cannot fail to lead to disaster in the future, and Dr. Wenyon must be congratulated on his pluck in exposing these faulty conclusions.

The other papers, which we are compelled reluctantly to pass over, are all very interesting and useful, but note must be made of the frequency of kala-azar in the Sudan revealed in the articles on that subject; this is a very serious matter for the country, and will have to be reckoned with in the future.

The coloured plates illustrating the part dealing with economic entomology are disappointing. Why Mr. Wellcome did not have them done by Mr. Terzi is difficult to understand, especially when the beauty of that artist's work in the second report is remembered. The photographs are numerous and excellent. Dr. Balfour is certainly to be congratulated on his success in getting together such a series of valuable papers, and also on the very good work he has himself done at the Wellcome Research Laboratories.

A prefatory note states that the review of some of the recent advances in tropical medicine, hygiene, and tropical veterinary science, with special reference to their possible bearing on medical, sanitary, and veterinary work in the Anglo-Egyptian Sudan, by Drs. Balfour and Archibald, contained in the supplement, is intended primarily for medical and veterinary officers stationed in the Sudan; it should, however, prove equally useful to doctors in the other African colonies, and, indeed, in other parts of the world. The matter is arranged alphabetically to facilitate reference. Some papers are quoted very fully, others more briefly, and comments are made on several. To review a review is somewhat difficult, but in turning over this supplement we are struck by the amount of repetition of work that goes on with regard to many subjects, no mention being made of the person or persons who made the original observations. In this way not only are time, energy and opportunity wasted, but the secondary work often passes amongst the uninitiated as original, and is quoted as such. A good example of this is the quotation of Lebredo's work (1905) on the development of filariae in mosquitos. As far as can be judged from the abstract there is nothing new in his work, and his histological technique is a copy of that used years ago, and certainly not invented by him. Very much the same may be said about the paper by Ashburn and Craig on the development of a filaria termed by them *Filaria philippinensis* in *Culex fatigans*. There is no proof that this is a new filaria at all; it is the old story retold of the *Filaria bancrofti* developing in *Culex fatigans*. Drs. Balfour and Archibald ought perhaps not to be blamed, since they only quote the papers as recent, and the reader must judge for himself if he has the capability for so doing. The compilation of this review must have cost the authors much labour and time, but they have this to congratulate themselves on—that it will prove an immense boon to many less fortunately situated than themselves as regards the recent literature of the subjects dealt with.

[1] *Third Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum.* By Andrew Balfour, M.D., B.Sc., F.R.C.P.Edin., D.P.H.Camb., Director; Medical Officer of Health, Khartoum. London: Baillière, Tindall, and Cox (for Department of Education, Sudan Government, Khartoum). 1908. (Imp. 8vo, pp. 477). 21s.) Supplement by Andrew Balfour, M.D., B.Sc., F.R.C.P.Edin., D.P.H.Camb., Director, and R. G. Archibald, M.B., R.A.M.C., attached E A., Pathologist and Assistant Bacteriologist. (Imp. 8vo, pp. 251. 10s. 6d.)

The executive of the sixth International Medical Congress, which is to meet at Buda-Pesth from August 29th to September 4th, has issued a comprehensive circular giving particulars with regard to the general sittings of the congress and also as to the proceedings of the sections. The lists of papers which it is proposed to read in the twenty-one sections are very long. Six general meetings of the congress to hear addresses will be held; one of these general addresses will be given by Dr. E. F. Bashford, Director of the Imperial Cancer Research Laboratory. The circular again points out that the hotels in Buda-Pesth will not be able to provide sufficient accommodation, and that it is desirable that those who propose to attend should communicate without delay with the Central Travelling Ticket Office, IV Vigadó-tér 1, Buda-Pesth, Hungary; the office of the Secretary-General of the Congress is at Esterházy-utca, 7, Buda-Pesth.

THE

THERAPEUTIC APPLICATIONS OF RADIUM:

METHODS AND RESULTS.

THE DESTRUCTIVE REACTION CAUSED BY RADIUM.

[FROM OUR PARIS CORRESPONDENT.]

THE destructive action of radium, employed with a therapeutic object, is well known, for when radium was first introduced this action alone was utilized. It is interesting, therefore, to note that Dr. Wickham tries to avoid this destructive action and to limit the cases in which this destruction is necessary. It has been found that in some cases long, even one or two years, after the treatment has ceased, the new-formed tissues have become the seat of telangiectases, a drawback which must be taken into account.

The destructive power of radium may be employed in those cases in which the aesthetic result is of secondary importance and in which, even if telangiectases supervene, the condition is still superior to what existed previously—cases, in fact, in which a destructive reaction is necessary, and when, as in lupus, radium has no selective specific action. In such a case the lesion is of so grave a nature that, if destruction brings about a cure, the few telangiectasic elements which might ultimately appear would be relatively of no importance.

In such cases Dr. Wickham does not hesitate to use strong doses—apparatus, for example, giving radiations of an activity of 500,000, which he leaves applied for five or six hours at a time. In the same way he does not hesitate to act energetically on pigmented naevi which form tumours.

The degree of the destructive action must be regulated according to the depth at which it is to operate. When superficial action is desired the apparatus is applied without a filtering screen, but to obtain a deeper destructive action a screen of medium absorbent power, from a tenth of a millimetre of aluminium to a tenth of a millimetre of lead, is interposed. By using the lead screen the rays of low penetrating power are cut off; those that remain act more deeply, but it is necessary to leave them in contact for a sufficient length of time to bring about destruction not only on the surface but in all the thickness of the tissue. At Dr. Wickham's clinic, at the Radium Institute, a large and fairly deep rodent ulcer was treated as follows: An apparatus, the utilizable activity of which was 500,000, was covered by a filtering screen of lead 1 millimetre thick; this was left in position for twelve consecutive nights from 7 p.m. to 7 a.m. Only a sharp inflammatory reaction was produced, a thick crust formed, and the entire rodent ulcer was involved in the reaction to the very penetrating radiations. When the crust fell off at the end of three weeks the healed surface was excellent and solid. This was a very good result, for the ulcer had previously resisted other methods of treatment; the cure also was very quick, because fifty days after the treatment was started nothing remained of the ulcer.

Drs. Wickham and Degrais have remarked that destructive inflammations produced in the depths of the tissues by the filtration methods, described in the preceding articles in the BRITISH MEDICAL JOURNAL, were repaired much more quickly than superficial destructions caused by the action of the alpha, soft and medium beta rays of weak penetrating power.

Whatever destructive process is employed, the action must be carefully regulated to avoid the risk of causing radium dermatitis. When the reaction produced by radium is slight, the skin is sometimes restored to a normal condition; and even when this result is not attained, it is rare to have any depression or retraction, so that the method may be applied to the eyelid, nostril, or lip. The drawbacks are the production of a very smooth, uniform, whitish condition of the surface; the occurrence of pigmentation which eventually disappears; or the late appearance of some telangiectasis. The last is the greatest drawback. It would indeed be of small importance if the cure of cancer was in question, but when it is a question of a flat, superficial, and not deeply-coloured naevus, it calls for careful consideration.

The following is a very striking example of the good effects of the destructive action of radium treated at Dr. Wickham's clinic:

A girl aged 13 had a large tumour of the class of pigmented naevi filling up the depression between the nose and the cheek. This tumour rose above the ridge of the nose, was of very dark colour, and gave the face a repulsive look. It was necessary to resort to the destructive action of radium in this case, since pigmented naevi are not specifically affected by it. A powerful apparatus was applied without any filtering screen, so that an inflammatory reaction with crust formation ensued. Two months later the inflammation had calmed down and the tumour had diminished by half. Two similar treatments were carried out at two months' intervals. The appearance of the face is now normal, the naso-malar depression is normal, and there is no projection above the surface, which is of the colour of *café au lait* with a whitish, smooth, cicatricial appearance in two places. There is no retraction of the eyelid which was affected nor of the nostril, so that the result, on the whole, is excellent.

To produce inflammatory reaction the duration of the applications of radium must be prolonged, and no tissue possesses absolute resistance to the rays. If with an application of duration x a certain tissue has resisted, it is sufficient to make an application of $x + x$ to produce irritation. The great difficulty in radium therapeutics is, in fact, to avoid causing destructive effects and to obtain cures without any, or with the smallest possible, inflammatory reaction.

INTERNATIONAL MEDICAL TEMPERANCE APPEAL, 1909.

IT is proposed to present at the twelfth International Congress on Alcoholism, to be held in July, 1909, in London, an international medical temperance appeal to the rulers, teachers, and clergy of all nations. Many of the Continental countries are already well represented by signatories. The promoters hope that Great Britain and Ireland may not be behindhand in the matter, and ask, therefore, that all who are willing to sign will intimate this fact not later than May 12th to Mr. W. McAdam Eccles, M.S., 124, Harley Street, London, W.

APPEAL TO THE MEDICAL PROFESSION OF ALL NATIONALITIES.

The International Union of Medical Abstainers, founded at the eleventh International Congress against Alcoholism, held at Stockholm in 1907, invites medical men of all nationalities to unite for common action to break the bonds of alcoholism. This appeal is based upon the following main considerations:

1. Many of the physical ills we have to bear are, and will be, the result of the action of alcohol taken in the form of a beverage.
2. To the medical profession falls the special duty of instructing people on these matters.
3. The consequences of the continued use of alcohol, as shown by the history of the human race, are always the same: demoralization, degeneration of individuals, and decadence of nations.
4. Spirituous drinks of any kind are unnecessary for the healthy individual; a desire for them exists only where it has been created artificially.
5. All normal organisms perform their various functions better without alcohol, which is specially dangerous to young or growing tissues.
6. For the welfare and preservation of future generations it is necessary to discontinue the use of alcoholic beverages, as only by widespread abstinence can alcoholism with its consequences be met and restricted.

On these grounds we members of the International Union of Medical Abstainers call upon our medical brethren of all lands to unite with us in the struggle against alcoholism and to sign the following appeal:

APPEAL FROM THE PHYSICIANS OF ALL COUNTRIES.

To all rulers, Governments, representative assemblies, to all tutors, teachers, clergymen, and to all who have at heart the welfare of our race and of future generations:

We, members of the medical profession, believing that by our studies and opportunities of recognizing and estimating the nature and action of alcoholic beverages, we are qualified to offer an opinion, affirm it as our strong conviction that these beverages are not only unnecessary, but are extremely injurious, and that the evils which arise and are ever breaking out from the consumption of alcoholic beverages can, and must be, eradicated and prevented. We believe that young people especially should receive careful and as full instruction as possible, and should be trained by example, as well as pro-

tected by law, to abstain from the consumption of alcoholic beverages.

We are fully convinced that some such step must be taken in order to create a sober world and to promote and ensure the happiness, welfare, and progress of the human race.

(Signed)

Dr. RIDGE (the late) (Enfield).
Dr. OLRIK (Frederiksvaerk).
Dr. LAITENEN (Helsingfors).
Dr. HOLITSCHER (Pirkenhammer).
Dr. VOGT (Kristiania).
Dr. SANTESSON (Stockholm).
Dr. STEIN (Budapest).
H. N. BARNETT, F.R.C.S. (Belfast).
T. H. BICKERTON, M.R.C.S. (Liverpool).
R. H. BLAIKIE, M.D. (Edinburgh).
W. CALWELL, M.D. (Belfast).
W. CARTER, M.D. (N. Wales).
J. G. CLEGG, M.D. (Manchester).
E. MACDOWELL COSGRAVE, M.D. (Dublin).
J. DIXON, M.B. (London).
W. MCADAM ECCLES, M.S., F.R.C.S. (London).
Surg.-Gen. G. H. EVATT, M.D. (London).
A. P. FIDDIAN, M.R.C.S. (Cardiff).
R. H. FOX, M.D. (London).
A. P. GOULD, M.S., F.R.C.S. (London).
J. S. GREER, L.R.C.P. (Dublin).
T. W. HAY, M.B. (Newcastle-on-Tyne).
W. F. HAZEL, M.R.C.S. (London).
E. C. HEARNE, L.R.C.P. (London).
Sir VICTOR HORSLEY, F.R.C.S., F.R.S., (London).
T. N. KELYNACK, M.D. (London).
G. B. MCKENDRICK, L.R.C.P. (Glasgow).
J. G. MCKENDRICK, M.D. (Stonehaven).
R. PARAMORE, M.D. (London).
H. J. PATERSON, M.B., F.R.C.S. (London).
Surg.-Major G. K. POOLE, M.D. (London).
A. B. PROWSE, M.D. (Bristol).
V. H. RUTHERFORD, M.D. (London).
T. RUSHBROOKE, M.R.C.S. (London).
J. G. SHARP, M.D. (Leeds).
Sir A. R. SIMPSON, M.D. (Edinburgh).
E. CLAUDE TAYLOR, M.D. (London).
W. B. C. TREASURE, M.D. (Cardiff).
HEYWOOD SMITH, M.D. (London).
D. WALLACE SMITH, M.D. (London).
G. SIMS WOODHEAD, M.D. (Cambridge).
J. MACKIE WHYTE, M.D. (Dundee).
H. WILLIAMS, M.D. (Northampton).

SIR ALMROTH WRIGHT AT THE AUTHORS' CLUB.

ON April 26th Sir Almroth Wright was the guest of the Authors' Club at a dinner at which some fifty members and their friends were present. Dr. ROBINSON presided, while Mr. CHARLES GARVICE was Vice-Chairman.

Sir ALMROTH WRIGHT in his speech adapted his language and argument to his lay audience, apparently satisfying the minds of his listeners. Bacteria, he said, played the most formidable rôle in the world. They were responsible for epidemic disease, and some conception of the significance of this might be gained from the fact that 1,200,000 lives were lost last year from plague. Next he dealt with some diseases of which we had already got the better, for example, typhoid fever, small-pox, and others. He regarded the epidemic acute diseases as of comparatively small importance, while the chronic diseases which were due to bacteria were the most serious. The forces which acted in regard to these diseases were not yet under control. After some further remarks of a general character, he made an attack on surgery, with especial reference to bacterial disease, contending that the lopping off of a limb to get rid of an infection was as reasonable as it would be to free a garden of weeds by digging up a few spadefuls of earth from time to time. Drugs came in for their share of condemnation, but an exception in their favour was made in the case of malaria, syphilis, and sleeping sickness. Sir Almroth Wright next turned his attention to Nature's machinery for disposing of bacteria. Lady Mary Wortley Montagu in introducing inoculation of the virus of small-pox early in the eighteenth century, marked the first great step in immunization. Then came Jenner's discovery, and the effect of using attenuated microbes was discussed. The generalization of laws with regard to prophylaxis had marked the work of Pasteur. Lord Justice Fletcher Moulton had suggested that as "prophylaxis" was the word used to mean preventing the disease before infection, the word "phylaxis" might be applied to that prevention which took place after infection, in which the length of the incubation period was made use of, as in rabies. Phylactic inoculations, however, were two-edged methods, and might be as dangerous as they might be useful. The next step was a comparatively small one. This was to attack a local infection before the bacteria had spread beyond a narrow limit, and the infection had been converted into a general one. He assumed that no one would doubt that local infections could be dealt with by immunizing means. He held that the same law must hold good for severe infections as did for mild infections of a local nature. Without describing the processes which produced immunity in detail, he briefly referred to phagocytosis, and stated that Metchnikoff's original claims in this respect had been disproved. In the fluid portion of the blood were chemical substances which formed part of the machinery of immunization. These substances were well defined, although he believed that the list of them was not yet complete. He dwelt on the function of the leucocyte as the wandering cell which picked up the bacteria and digested them. Having lightly outlined his conception of the natural process of immunization by the chemical substances which acted on the invading bacteria, he turned to his own method of artificially increasing the activity of the processes by means of vaccines. In speaking of the diseases to which this method could be applied he divided infective diseases into three classes. First, there were the acute septicaemic diseases, which either caused death or spontaneously ended in recovery. Immunity resulted as a natural process after the attack. Next, there were the localized infections with constitutional symptoms; and lastly, the localized infections without such symptoms. The process of immunity was not set to work in the latter, as was proved by the fact that lupus might last for forty years. These diseases did not cure themselves. They could not be dealt with by sanitation; they could only be properly treated by means of therapeutic inoculations. In concluding, he said that he believed that this method would be the proper one for the treatment of all diseases.

After some remarks by Dr. ALLEN,

Lord Justice FLETCHER MOULTON gave a layman's description of what nature did when the body was invaded by bacteria. Sir Almroth Wright had not troubled to satisfy the medical profession, and there were many members who differed from him, but he believed that in time Sir Almroth's views would be accepted. The swarms of bacteria appeared formerly to have it all their own way, but now it could be shown that myriads of friends were ready to encompass these enemies. It must have appeared to be almost hopeless to fight these numerous microbes, but inasmuch as they were all alive, it was certain that nature must have some way of doing it. This method must be automatic, or else it could not succeed. Nature had a funny way of pulling us through an infective disease such as typhoid. At first the bacteria were not numerous and the patient was not very ill. But later he became more and more ill, and the bacteria increased, until they literally swarmed; and, just when he might be expected to die, he suddenly got better. Nature did not prepare against invasion until the enemy arrived, which was a method not unknown in political life, but which must appear to be a curious method. It was the coming of the enemy which started the preparation. But nature was blind, even if she felt most acutely. She answered the call even of dead bacteria. In prophylactic measures, the countryside was awakened and fully alive; all the police were called out. In localized disease—that was, when there had been invasions of a small area—there were no policemen, and all the hooligans did what they pleased. Since the local force was beaten, vaccine therapy called out the police of other districts, and as these arrived in their masses the lawlessness was quenched and the invaders were thoroughly routed. The trick of offering nature a dead microbe to induce her to exert her protective forces was clever. The speaker concluded by bestowing great praise on the guest of the evening, and prophesying that vaccine therapy would replace the older methods some day.

Mr. BRUDENELL CARTER and Mr. F. GRIBBLE also spoke and Sir ALMROTH WRIGHT replied.

THE BUDGET AS IT AFFECTS THE MEDICAL PROFESSION.

To the average taxpayer the Budget of 1909 is not a little bewildering. This is due partly to the length and discursiveness of the Chancellor's speech—the delivery of which occupied no less than four hours and a half—and partly to the numerous additions which are to be made this year to direct and indirect taxation in order to provide for the huge and, in time of peace, unprecedented increase in the national expenditure. It will probably interest our readers if we attempt to unravel the skein, and to show how far the proposals of the Chancellor of the Exchequer affect medical practitioners, either directly as a class or indirectly as ordinary citizens.

INCOME TAX.

As for the income-tax proposals, so many members of the profession are affected by them that it may be well to explain briefly their purport and effect. By the successive introduction of a scale of abatements, differentiation between earned and unearned incomes, and now a supertax on large incomes, the calculation of the amount of income tax payable by any individual has become a somewhat complicated problem, which a change in the general rate of tax does not help to solve. The following tabular statement shows in the briefest form the effect of the proposals for the current year:

Amount of Total Income.	Abatement Allowed.	Rate of Tax Payable if the Income is:		
		Wholly Earned.	Wholly Unearned.	Partly Earned and Partly Unearned.
£	£			
160-400	160			
400-500	150	9d.	1s. 2d.	9d. on earned and 1s. 2d. on unearned portion.
500-600	120			
600-700	70			
700-2,000	—	9d.	1s. 2d.	Ditto
2,000-3,000	—	1s.	1s. 2d.	1s. on earned and 1s. 2d. on unearned portion.
3,000-5,000	—	1s. 2d.	1s. 2d.	1s. 2d.
Over 5,000	3,000 at 6d. in the £	1s. 8d.	1s. 8d.	1s. 8d.

A few observations may be made in further explanation of the foregoing table. With regard to total incomes not exceeding £700 the appropriate abatements are allowable primarily from the assessment on the earned income—that is, at the ninepenny rate, and from the unearned income only to the extent, if any, to which the earned income is insufficient to permit the full allowance to be made therefrom. A few examples will make this point clearer:

Amount of Income.			Abatement Allowable.	Net Amount Taxable.	
Earned.	Unearned.	Total.		At 9d.	At 1s. 2d.
£	£	£	£	£	£
200	—	200	160	40	—
160	160	320	160	—	160
100	200	300	160	—	140
80	600	680	70	10	600

The placing of the limit of differentiation in favour of earned income at £3,000 was recommended by the Income Tax Committee of 1906, but this recommendation was not adopted in its entirety by the then Chancellor of the Exchequer when framing his Budget of 1907, the relief granted on earned incomes stopping at £2,000. Mr. Lloyd-George has now extended the relief to incomes not exceeding £3,000, but limits it by imposing a higher rate—namely, 1s., on incomes lying between £2,000 and £3,000, instead of 9d., the rate chargeable on earned incomes not exceeding £2,000. All relief on earned income ceases when the total income exceeds £3,000, and from £3,000 to £5,000 the general rate of 1s. 2d. applies to all classes of income alike. When the total income exceeds £5,000 a supertax of 6d. in the £, over and above the normal rate of 1s. 2d., is to be imposed, the additional tax to be collected by means of a direct assessment on the person liable. This supertax is not to be charged on the total income, but every person liable is to enjoy an abatement of £3,000, and to pay supertax on the excess beyond this amount. Thus, an income of £5,001 will pay 6d. in the £ on £2,001, one of £10,000 will pay on £7,000, and so on.

Before leaving the subject of supertax it is desirable that a misapprehension which has caused needless alarm to many persons should be removed. It has been assumed that the supertax will apply not only to the incomes of individuals, but also to those of firms, companies, societies, etc., and fears have been expressed that the owner of a few shares in, say, a railway company, might in this way be made to bear a share of the supertax. This is a mistake. The Chancellor of the Exchequer has recently stated specifically that the supertax is to apply only to the incomes of individuals, and not to joint-stock companies and other bodies of persons.

This statement is of particular interest to medical practitioners who are carrying on business in partnership. Suppose, for instance, that the profits made by a firm of three persons amount to £5,400, and that each partner takes one-third of the total, and has no other income. Although the total profits exceed £5,000, the share of each partner, which, in this case represents his total income, is under that amount. In these circumstances not only will no supertax be payable, but each partner will be able to claim the benefit of the ninepenny rate, as his total income is less than £2,000. The rule is that the profits of a partnership must be assessed in one sum, but that the rate of tax to be charged on such profits depends on the respective total incomes of the individual partners among whom the profits are divided.

An unexpected but welcome feature of the Budget income-tax proposals, to which reference has not yet been made, is the allowance of abatements for children. These abatements will be granted only to persons whose total incomes do not exceed £500 a year, but subject to this limitation, it is proposed to make an allowance of £10 (tax, at 9d., 7s. 6d.) from the assessment, for every child under the age of 16 years. The effect will be that, together with the ordinary abatement of £160, one child will free an income of £170 from tax, four children will free an income of £200, and eight children one of £240. As this abatement is to be made in addition to all other allowances, a case may possibly occur of a person with an income of £300 having nine children, and paying £50 a year for life assurance premiums, who will be called upon to pay no income tax at all. It may be of interest to note in passing that abatements for children were allowed in Pitt's income-tax of 1799. Mr. Lloyd-George's proposal, therefore, has not the merit of novelty.

MOTOR CARS.

In lieu of the existing licences the owners of motor cars are in future to pay according to a graduated scale, ranging from £2 2s. on cars of less than 6½ h.p. to £42 on cars above 60 h.p. "Doctors' cars," said Mr. Lloyd-George, "I propose to charge at one-half these rates," and few persons will be disposed to question the fairness of this differentiation in favour of the profession. The Chancellor also announced a tax of 3d. a gallon "on all petrol or spirits used for motor vehicles," with a rebate of one-half in the case of commercial vehicles. No special mention of the doctor was made in this connexion, and it is doubtful whether he is to be regarded as entitled to the rebate. As, however, the ground for charging him with licence duty on his car at half rates is that he uses it for the purposes of his profession, it would be highly anomalous if the petrol were regarded as used for other than "commercial" purposes.

In endeavouring to estimate the effect of the new tax, which for the purpose of calculation has been taken to be levied at the higher rate (3d.), the factors to be considered are the average distance travelled by the medical man every year, the average rate of fuel consumption by his car per completed mile, and the skill of its driver. As regards the first of these points, a distance of 5,000 miles is commonly assumed to be the mileage traversed by an average medical man in the course of his professional

duties. It represents about 16 miles a day, not including Sundays, and probably therefore does not err on the side of excess.

The amount of fuel required by engines varies very considerably with cars of different makes, and also of course with the horse-power employed. A car, however, of good make and not exceeding about 8 horse-power ought to travel at least 25 miles for every gallon of petrol, and as the majority of medical men who use cars strictly for professional purposes do not buy high-powered cars, an engine of this character is sufficiently illustrative. Of course, high-powered engines consume much more petrol than small cars, and there is no absolute ratio between horse-power and fuel consumption, even in cars of the same make; nevertheless, it may be assumed, for practical purposes, that if an 8-h.p. car of a certain make will travel 25 miles on one gallon, a 20-h.p. car of the same make will travel about 18.

Every item of expense involved by the use of automobiles is liable to be increased by unskilled driving, and fuel consumption is no exception; nevertheless the effect of bad driving is relatively so small that this factor may be left out of consideration and the additional expenditure entailed by the increased duty be put down as about £2 10s. in the case of users of quite small cars, and as about £3 3s. in the case those who use cars of between 16 and 20 h.p. It appears, however, to be intended to collect the tax not from the retail purchasers of petrol, but from the wholesale importers, and it is anticipated that these will increase the retail charges not merely by 3d., but by 4d. or 5d. so as to cover the expense in the way of bookkeeping and capital outlay in which it is alleged they will be involved. Hence the expense to medical automobilists will be considerably higher than the sum just stated, the figures being thus raised to about £3 10s. in the first case, and upwards of £4 4s. in the second. In other words, the price of petrol will rise from the low figure to which it has dropped during the last year or two to that at which it stood when motor-car driving first became at all general.

Medical automobilists have hitherto been taxed partly under the Inland Revenue Act, and partly under the Light Locomotive Act, the precise amount they pay being determined by the weight of the car they use. The new proposal is that the cost of a licence shall depend not on the weight but on the horse-power of the car to which the licence applies, the scale being as follows:

	£	s.	d.
Cars under 6½ h.p.	2	2	0
,, ,, 12 h.p.	3	3	0
,, ,, 16 h.p.	4	4	0
,, ,, 26 h.p.	6	6	0
,, ,, 33 h.p.	8	8	0
,, ,, 40 h.p.	10	10	0
,, ,, 60 h.p.	21	0	0
,, over 60 h.p.	42	0	0

Medical automobilists will pay half these rates, but what these rates will work out to in the case of any given car is not easy to determine. Since one horse-power is merely a capacity to raise a weight of 33,000 lb. one foot in one minute, it seems at first sight as if it should be sufficiently easy to determine the horse-power of any given engine; but in practice this is by no means the case, and such numerous methods of calculating horse-power have been devised, that at present the term "horse-power" tends to be somewhat vague. Inasmuch as purchasers are usually prepared to pay heavier prices for high than low-powered vehicles, the tendency of vendors, if not of manufacturers, has perhaps been to exaggerate the power of the cars of which they have to dispose; but on the other hand, in the case of cars of the class whose claims have always been advocated in these columns, namely, those which have figured well in the reliability trials of the Royal Automobile Club, the horse-power in the case of small cars is commonly under rather than over estimated, owing to the club's rules in respect of trials. What method of estimating horse-power will be adopted for revenue purposes remains to be seen, but there is reason to believe that it will be that of the club in question. Its method has been reduced to the formula:

$$\frac{D^2N}{2.5} = \text{H.P.}$$

in which the divisor 2.5 is a constant, D the diameter of the cylinder, and N the number of cylinders. In the case of a car with four cylinders, each 4 in. in diameter, the calculation would be:

$$\begin{aligned}\text{H.P.} &= 4 \times 4 \times 4 \times 0.4 \text{ (which equals} \div 2\tfrac{1}{2}) \\ &= 64 \times 0.4 \\ &= 25.6\end{aligned}$$

and such a car would be classed as under 26 h.p.

It has been objected that this formula leaves out of consideration the length of the piston stroke; but this is not truly the case, because it is based on the power output of normally-proportioned engines, and departures from the normal in point of stroke length are accompanied by so many disadvantages that in the long run they will not be adopted. The actual power of an engine may be increased by adding to the length of its stroke, but such increase causes jerkiness and vibration, and the aim of all constructors of high-powered cars is to eliminate vibration, and thereby increase comfort. On the other hand, abnormal length of piston stroke is not uncommon in small cars, because manufacturers desire to make them as speedy as possible in proportion to their size, and their users are prepared to put up with a certain amount of vibration. Hence it may very well be that those who possess cars of 10 to 16 h.p. may be pleasantly surprised when their cars come to be measured for revenue purposes.

In any case it would not appear that many medical automobilists are likely to pay more in the way of car licences under the new arrangement than under the old, and many of them may pay less. A car of 10 or 12 h.p. commonly weighs from 11 to 15 cwt., and the owner at present pays £2 2s. In future he will pay only 31s. 6d., or less than at present: while those using 16-h.p. cars will only pay the same amount as the driver of a brougham or victoria—namely, £2 2s. Above 16 h.p. the rise in the tax is considerable, but even those who own cars over 20 h.p. will only pay a guinea more than now.

Other Imposts.

The death duties are to undergo revision, and the estate duty on all estates exceeding £5,000 will be considerably increased, estates of £1,000,000, and upwards paying the maximum rate of 15 per cent. Stamp duties on the transfer of real property will be doubled, and certain other stamp duties will be considerably increased. Taxes on spirits are to be increased by 3s. 9d. a gallon, and the tax on tobacco is to be raised 8d. a pound. Moreover, a beginning is to be made with a sweeping measure of land taxation. This proposal provides for three separate but connected taxes, namely, a duty of 20 per cent. on future appreciation in the capital value of land, a reversion duty payable when leases fall into possession, and a duty on undeveloped land. These imposts will directly affect the medical practitioner only in so far as he may be the owner of property and in his work of making provision for any family he may leave behind him. They are, however, capable of almost unlimited extension, and may ultimately lead to the shifting of the burden of local rates and Imperial taxes from houses and buildings to the land or sites on which they stand. It will be time enough to deal with this aspect of the question of land taxation when these wider proposals are about to become an accomplished fact.

It is somewhat unfortunate, too, that Mr. Lloyd-George, in his eagerness to find a "new hen-roost to rob," should have imposed an additional duty of 3s. 9d. per gallon on proof spirit, an increase which will materially affect the price of many medicines, especially tinctures. The matter is, we believe, under consideration of pharmacists' associations, who consider that the manufacture of medicine should be subject to a special rebate. The increase in the cost of medicines will, as is pointed out by a correspondent, make contract medical practice at anything like present rates all but impossible. In this, as in other ways, although the Budget has a socialistic basis, it is the poor on whom the burden of the new taxation will ultimately fall.

An Omission.

In conclusion, we regret that in framing his Budget the Chancellor of the Exchequer has not availed himself of the opportunity to impose a tax on patent medicines of a much more onerous character than the existing impost. In our judgement there could scarcely be a fitter subject for taxation, while the enormous quantities of such medicines which are sold annually render it certain that

the Revenue would benefit considerably from such a tax. Mr. Lloyd-George, however, has elected to go elsewhere for his money, and it now remains for him only to obtain the consent of Parliament to his proposals for them to become law.

EGYPT AND THE SUDAN IN 1908.

THE reports of Sir Eldon Gorst, British Agent and Consul-General, on the finances, administration, and condition of Egypt and the Sudan in 1908, were issued on May 4th. In the opening passages the administrative difficulties caused by the agitation against the British occupation are discussed, and must be borne in mind in estimating the rate of progress.

EGYPT.

The growth of the population of Egypt is greater than that of most European countries, with the exception of Germany, and exceeds that of India. The population enumerated by the census was 11,189,978; nomad Arabs could not be enumerated, but an estimate obtained from their chiefs placed their number at 97,381, giving a total population of 11,287,359. The growth of the population in Cairo and Alexandria has been specially rapid.

The project for the drainage of Cairo recommended by Sir William Garstin, formerly adviser to the Ministry of Public Works, and by the Director-General of the Public Health Department, has been approved, and the works will, it is anticipated, be commenced at an early date, but will take some years to complete. With regard to the water supply, a simple method of removing iron and manganese from the Rod-el-Farag supply has been found efficient, but the water still remains much harder than that of the Nile. The discussion on this point and also as to the permanence of the supply and its protection from pollution is still proceeding.

Hospitals.

The twenty-one general hospitals in Egypt contain 2,153 beds; the in-patients in 1908 numbered 33,241, an increase of a little more than 2,000 on the previous year. There were 181,580 out-patients, an increase of over 16,500. In order to bring medical aid within the reach of the more remote villages, the sanitary department is gradually instituting fully-equipped dispensaries and first-aid establishments under the direction of the local medical officer. There are now 48 such dispensaries, and the total number of patients attending them in 1908 was 38,000, an increase of 30 per cent. over the previous year. The wealthier inhabitants continue to show their interest in the foundation of hospitals, and during the year a considerable sum was subscribed to endow a hospital at Mellawi, in Upper Egypt.

Ophthalmic Hospitals.

The travelling ophthalmic hospitals instituted through the generosity of Sir Ernest Cassel have now become a branch of the Public Health Department. The number of patients treated during 1908 was 7,764, but 10,445 were refused on account of lack of accommodation. Sir Eldon Gorst considers it very desirable to institute an organized system for the examination of the eyes of school children, and calls attention to the statement of Mr. MacCallan, Chief Inspector of Ophthalmic Hospitals, that in one school he visited 22.6 per cent. of the pupils had their eyesight permanently depreciated, while 37.5 per cent. had such defective vision that they were unable to attain even the low standard required for admission to the clerical ranks of the Egyptian Civil Service. The permanent eye hospital at Tantah was opened last November. At Assiout the inhabitants have subscribed £E5,000 for the construction of an eye hospital, and at Mansourah a local notable has given £E5,000 for a similar purpose. The Government has undertaken to maintain all hospitals constructed by private subscription.

Lunatic Asylums.

The extension of the Abbassieh Asylum was continued, and a new prisoners' block, a female section, and other minor additions will be ready for use this year. Eventually the asylum will provide accommodation for 1,100 inmates. The asylum in the course of erection at Khanka, intended to be an agricultural settlement for chronic and mild cases, will, it is hoped, be ready in two or three years to receive 300 inmates. Among the patients admitted to the Abbassieh Asylum, hashish was assigned as the cause of insanity in 8 per cent., as compared with 14 per cent. in the previous years. The police displayed considerable zeal in raiding hashish dens, gambling houses, and unlicensed liquor shops, and as a result 1,908 establishments where hashish was used were definitely closed, and it would appear that an efficient coastguard service, which is at the present time almost entirely occupied in preventing the smuggling of hashish, coupled with strict police measures in the towns, has materially limited the opportunities for indulging in this lamentable habit.

Plague and Cholera.

The number of cases of plague was 1,511, distributed over 142 centres of infection; the corresponding figures for 1907 were 1,253 in 107 centres. The infection was introduced nine years ago, but until 1906 was practically confined to the Delta and Middle Egypt and was of the bubonic form. When Upper Egypt was invaded the disease took the very fatal pneumonic form. Special measures were organized in the four southern provinces dealing with the outbreaks, and wherever early information was obtained cases were quickly controlled, as a rule within the limit of the period of incubation, but in villages where the occurrence of the disease was concealed much more energetic action was necessary. The most difficult task of the officers of the sanitary department is to overcome ignorance and prejudice with regard to giving early information.

Only a few cases of cholera occurred in the quarantine camp at Tor; Egypt itself was not invaded.

Village Barbers.

On this subject Sir Eldon Gorst makes the following observations:

> The office of village barber is an institution of great antiquity in Egypt. Without going into this functionary's history, it may be said that his duties consist principally in performing vaccination and various minor operations, sending in returns of births and deaths, and furnishing other information to the district authorities. He obtains no remuneration from the Government, but receives small fees from his clients, and his interests are closely bound up with the goodwill of the village Omdeh. The functions and responsibilities which he exercises have not contributed to independence of character, or to a sense of duty to the superior authority which appoints but does not pay him. The rank and file of this class are consequently of indifferent quality, and really trustworthy men are few and far between. Last year the experiment was made of utilizing the village barbers in connexion with the special measures for dealing with pneumonic plague in Upper Egypt, and a small sum was devoted to paying a few selected barbers in each province, in order to obtain more speedy and trustworthy information than would be furnished by the villagers, and to encourage the early notification of suspicious deaths or illness in the barber's village or its neighbourhood. In most cases the offer of a small fixed salary was sufficient to obtain all that was required. Reports from the provincial authorities are unanimous in testifying to the advantage of the system, and in recommending its further extension on a permanent basis. It must be admitted, however, that, apart from financial considerations, the general mass of the barbers are not as yet worthy to be taken into the Government service. The majority are illiterate, many are inefficient, and in some cases men of indifferent character have been appointed, in the absence of more desirable candidates.

Egyptian University.

The Egyptian University was inaugurated by the Khedive in December last. The chief practical objects to which its efforts are at present directed are to form a professorial body capable of lecturing in Arabic on the principal sciences taught in Europe, and to bring before the Egyptian public the latest developments of science and literature in Europe. Of the 754 students originally entered 678 were Egyptians, of whom 508 were Mohammedans; among the students were 31 women. The income of the university during the year was £E27,000, of which amount £E16,000 was provided by private generosity.

School of Medicine.

During the past year 50 students joined the school, and 7 obtained their diplomas—4 in medicine and 3 in pharmacy. There are now 190 students in attendance. Owing to this large increase, the staff finds great difficulty in carrying on the work efficiently, and when the next budget is prepared this question will require careful consideration.

In 1908 two graduates of the school were sent to England to be trained as assistant professors, and arrangements were made for sending two others early this year. The importance of exercising great care in the choice of men who are to be trained in Europe at Government expense as future teachers at the School of Medicine is self-evident. The safest method it is considered is to test the most promising at laboratory work before a definite selection is made, and thus to make certain of their possession of such essential qualifications as the power to exercise authority over students, willingness to accept responsibility, and desire to acquire knowledge for its own sake.

Sudan.

Though during 1908, the tenth year of the reoccupation of the Sudan, there has been unrest among the tribesmen, and fresh proof that Mahdism as a faith is not extinct, and in spite also of a deficit in the revenue, there is evidence of increasing prosperity. The population of the country is not known, but the significant fact is mentioned that the number of children of 10 years and under is very large, whereas there are comparatively few youths and girls between the ages of 10 and 20; this is held to prove that the inhabitants are naturally prolific, and that a period of continued peace will repair the ravages made by war and pestilence.

Public Health.

The Sudan was free from any serious epidemic of infectious disease during 1908, but Dr. Christopherson reports minor outbreaks of cerebro-spinal meningitis, infectious pneumonia, small-pox, chicken-pox, diphtheria, and dengue, and there have also been isolated cases of kala-azar, Malta fever, and blackwater fever. At least 5 cases of kala-azar have been treated in the Khartoum hospitals, and Sir Eldon Gorst records with regret the death of Captain Craik from this disease. A medical officer is to study the disease in Kassala, where most of the cases have originated.

The number of in-patients treated in all the institutions in the Sudan was a little over 7,000—about the same as last year. The number of out-patients was 121,214, an increase of over 27,000 as compared with the previous year. The new hospitals at Port Sudan and Atbara are practically completed, and the new Khartoum Hospital will be ready for occupation during the present year. Dr. Christopherson considers that attempts to train native women in nursing have so far proved a failure, and that Arab and Sudanese boys make better hospital attendants.

The system of selling quinine at the post-offices seems to be appreciated, as over 6,000 boxes were sold during the year.

LITERARY NOTES.

A meeting of the Council of the Italian Society of the History of Medicine and the Natural Sciences was recently held in Rome. It was decided that the proceedings of the Congress of the society held at Faenza should be printed. This year the society will hold its annual meeting at Venice.

At the prize distribution to the 2nd Home Counties Field Ambulance Royal Army Medical Corps commanded by Major A. R. Henchley, for their first year's work under the new territorial scheme, on Easter Monday, the Mayor of Canterbury referred to the part taken by East Kent in national defence in former days. He said that in the days of the Armada, the levies of East Kent were hastily assembled at Northbourne. The city of Canterbury sent 200 of her own soldiers with twenty trained shot, all fully equipped at the city's expense, and led by one of her own aldermen. The records might still be read in the old Corporation books how the city also ordered new drums and two new "ensigns" of the old city colours, red and white, at the public charge of several pounds. It is interesting to note that the next heaviest payment was for unguents for the surgeon of the company and a "goodly chest to bestow his instruments of surgery." Fortunately they were not required, but it was probably not generally remembered, even in Canterbury, that it was this particular array which Macaulay had in his mind in his famous ballad of the Armada:

> With loose reign and bloody spur rode inland many a post,
> With his white hair unbonnetted the stout old Sheriff comes,
> Behind him march the halberdiers, before him sound the drums.

Later it was recorded that during the wars in the Low Countries Dr. John Golder charged £44 5s. for attendance on 42 English for 59 days, and the apothecary charged £88 18s. 7d. for medicines advised by Major Henchley's predecessor of that period.

H. K. Lewis has in preparation a new book entitled *Immunity and its Applications in the Diagnosis and Treatment of Infectious Diseases*, by Dr. D'Este Emery, the author of *Clinical Bacteriology and Haematology*, a work which has reached its third edition in Lewis's Practical Series. The book aims at giving a clear outline of the main facts and theories in regard to immunity, and is not written in support of the view of any particular school. It is intended mainly for students commencing the study of the subject, or for practitioners wishing to learn the scientific basis and exact mode of application of the modern methods of diagnosis and treatment of the infectious diseases. The book also contains a Glossary of Terms—a very important feature in view of the new vocabulary which the study of the subject has called into existence—and an extensive Bibliography. The same firm has almost ready for publication the lectures delivered at the University of London in February, 1909, by Dr. Louis C. Parkes, under the trust of the late Sir Edwin Chadwick. The official title of the course was "The Medical Aspects of Recent Advances in Hygiene as connected with Sewering," but Dr. Parkes has called the book *House-Drainage, Sewerage, and Sewage Disposal in Relation to Health*. Mr. Lewis has just issued a fourth edition of Binnie's *Operative Surgery*. The section on the extremities has been omitted, but in spite of this the revisions and extensions increase the number of pages and the illustrations as compared with the third edition.

Messrs. Rebman Ltd. will publish this month a work entitled *Progressive Creation*, by the Rev. Holden E. Sampson. It deals with the origin of life, of being, of nature and forms, of evil, and of the earth and heavenly bodies, as to which the author is said to propound a new theory.

The *Journal of Pharmacology and Experimental Therapeutics* is the title of a new periodical issued by the Williams and Wilkins Publishing Company, Baltimore. The editor is John J. Abel, Professor of Pharmacology in Johns Hopkins University, with the following as associate editors: A. C. Crawford, Pharmacologist, U.S. Bureau of Animal Industry; C. W. Edmunds, Professor of Materia Medica and Therapeutics, University of Michigan; D. L. Edsall, Professor of Therapeutics and Pharmacology, University of Pennsylvania; S. Flexner, Director, Rockefeller Institute for Medical Research; R. A. Hatcher, Professor of Pharmacology, Cornell University Medical College; C. A. Herter, Professor of Pharmacology, Columbia University; Reid Hunt, Chief of Division of Pharmacology, U.S. Public Health and Marine Hospital Service; A. S. Loevenhart, Professor of Pharmacology, University of Wisconsin; S. J. Meltzer, Head of Department of Physiology and Pharmacology, Rockefeller Institute for Medical Research; Franz Pfaff, Professor of Pharmacology, Harvard University; A. N. Richards, Professor of Pharmacology, North-western University; Torald Sollmann, Professor of Pharmacology, Western Reserve University; G. N. Stewart, Professor of Experimental Medicine, Western Reserve University; C. B. Wallace, Professor of Pharmacology, University and Bellevue Hospital Medical College. The journal will be carried on with the collaboration of the members of the recently organized Society for Pharmacology and Experimental Therapeutics. At least six numbers of the journal will be issued yearly, and will constitute a volume of not less than six hundred or more than six hundred and fifty pages. Among the papers that will appear in early numbers of the journal are:—John J. Abel and L. G. Rowntree: On the pharmacological action of some phthaleins and their derivatives, with especial reference to their behaviour as purgatives. A. C. Crawford and H. V. Honn: Some convenient laboratory apparatus. G. Dock: Observations on the effect of ipecac. on intestinal amebae. C. W. Edmunds and W. W. Hale: Studies in tolerance: nicotine, lobeline, and strychnine. W. W. Ford: On the toxicity of *Amanita spreta*, *A. strobiliformis* and other Amanitas whose toxic properties have remained undetermined. W. W. Hale: The effects of caffeine and sodium bicarbonate upon the toxicity of

acetanilide. A. S. Loevenhart and W. E. Grove: On the pharmacological action of certain substances containing physiologically active oxygen, together with some therapeutic suggestions as to this class of substances. S. J. Meltzer: A study of the comparative toxicity of the chlorides of magnesium, calcium, potassium, and sodium. T. Sollmann and Paul J. Hanzlick: The absorption of phenol from the alimentary canal. G. N. Stewart: The mechanism of haemolysis in its more general aspects. C. Voegtlin and S. Strouse: Studies on the iodine-containing principle of the thyroid gland. I. Pharmacological action and therapeutic behaviour of diiodotyrosin.

Medical News.

DR. JAMES MACLACHLAN, Provost of Dornoch, has been for the third time re-elected Chairman of the Licensing Court of the County of Sutherland.

THE first of the course of eight lectures on the structure and functions of the central nervous system in the Physiological Institute of University College, by Dr. W. Page May, will be given on Tuesday next, at 5 p.m., and will be continued on subsequent Tuesdays. The lectures are open to students of the University of London and to qualified medical men on presentation of their card.

AT the meeting of the Zoological Society of London on April 27th Mr. R. H. Burne, F.Z.S., exhibited a series of specimens from the Museum of the Royal College of Surgeons, showing (1) the different mechanisms for the movement of the nictitating membrane, (2) the coarse anatomy of the *Tapetum lucidum*, and (3) the organ for elevating the eyes in the plaice.

AT a general meeting of the Medico-Psychological Association to be held at 3 p.m. on Tuesday, May 18th, at 11, Chandos Street, London, W., a resolution will be proposed expressing the view that legislation to amend the Inebriates Act is urgently necessary. Dr. John Turner will report his observations on the blood pressure and vascular disease in the female insane.

PROFESSOR TAAV. LAITINEN, M.D., Professor of Hygiene, and Director of the Hygienic Institute in the University of Helsingfors, and Chairman of the Finnish National League of Health, will deliver the Third Norman Kerr Memorial Lecture on July 20th in the lecture theatre of the Victoria and Albert Museum at 8 p.m. The subject will be "The Influence of Alcohol on Immunity."

THE Lord Advocate, the Right Hon. A. Ure, K.C., M.P., will take the chair at the dinner of the Glasgow University Club, London, at the Trocadero Restaurant, on Tuesday, May 25th. Members who intend to be present or to introduce guests are requested to give notice as early as possible to the honorary secretary, Mr. W. Craig Henderson, 2, Paper Buildings, Temple, E.C.

AT a provincial sessional meeting of the Royal Sanitary Institute, to be held at the Guildhall, Norwich, on Saturday, May 22nd, at 11 a.m., Mr. A. E. Collins, City Engineer, will open a discussion on the special features of the Travis hydrolitic systems of sewage tanks constructed for Norwich. In the afternoon visits will be paid to the isolation hospital and to the sewage tanks.

THE annual meeting of the Invalid Children's Aid Association will be held, by kind permission of Lord and Lady Newlands, at 16, Grosvenor Place, S.W., on Tuesday, May 25th, at 3 p.m. Field Marshal Lord Grenfell will preside, and the Bishop of Stepney, Sir Alfred Fripp, Mr. How, and Miss Tita Brand will be among the speakers. Tickets of admission can be obtained on application to the Secretary at 69, Denison House, Vauxhall Bridge Road, S.W.

A BILL has been introduced into the New York State Legislature providing for the appointment of a board of inebriety for the City of New York and the establishment of an inebriate hospital, with an industrial colony, in which persons arrested for intoxication may be detained and scientifically treated. The measure was framed by the standing committee on hospitals of the State Charities Aid Association.

THE eleventh meeting of the Departmental Committee appointed by the Lord President of the Council to consider the working of the Midwives Act was held at the Privy Council Office on May 5th, Mr. Almeric W. Fitzroy, the Clerk of the Council, presiding. Evidence was tendered on behalf of the British Medical Association by Mr. J. Smith Whitaker, M.R.C.S., L.R.C.P., Medical Secretary of the Association; Mr. C. E. S. Flemming, M.R.C.S., L.R.C.P., Bradford-on-Avon; Dr. L. S. McManus, Wandsworth; and Mr. J. H. Taylor, M.B., Salford.

THE International Tuberculosis Society, the President of which is Professor Lancereaux, offers a number of prizes for essays on tuberculosis. One prize is of the value of £12, another of £5, and two of £2. The society also offers two gold, and three silver, medals, each with a diploma of honour. The awards will be made in May, 1910. The competition is open to persons of all nationalities. Essays must be sent in a sealed envelope to Dr. Georges Petit, General Secretary of the Society, 51, rue de Rocher, Paris, before January 1st, 1910.

DR. J. BISSET-SMITH, who is leaving Ashton-under-Lyne after practising there for over thirty years, was recently presented with a testimonial consisting of an illuminated album and a gold watch with chain and pendant, the watch being suitably inscribed; a silver purse and card case combined was at the same time presented to Mrs. Bisset-Smith. Councillor John Wilson said that Dr. Bisset-Smith's work in connexion with educational institutions, town council, police, and infirmary, was well known.

THE annual general meeting of the Poor Law Medical Officers' Association of England and Wales will take place on July 6th, at the Guildhall, London, and a conference will there be opened on the report of the Royal Commission with regard to Poor Law medical relief. The Lord Mayor has promised to open this conference at 11 a.m. in the Council Chamber of the Guildhall. All Poor Law medical officers in England and Wales are invited to attend, and the Honorary Secretary will be glad to hear from any desiring to read papers at this conference. Abstracts of such papers should be sent to the Honorary Secretary, Dr. M. Greenwood, 243, Hackney Road, London, N.E.

THE sixth annual report of the Knightwick Sanatorium of the Worcestershire Association for the Prevention of Consumption shows that this institution has now accommodation for 30 patients—16 men and 14 women—a number still below the requirements of the county; during the year 103 patients were treated. It is a significant fact that 20 per cent. of the candidates for admission were rejected by the medical referees as unsuitable, owing to the advanced or extensive nature of the disease. The results of the six years' work since the sanatorium was opened are satisfactory, in that of the early cases treated 88 per cent. remain in good health and 85 per cent. are at work.

THE usual monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on April 16th, Dr. de Havilland Hall in the chair. The records of the business during the spring show as usual a large number of sickness claims, but though very numerous they have been nearly all of short duration, and the total sick pay disbursements have accordingly not much exceeded the amount expected. The principal business of the committee was the examination of the drafts of the quinquennial valuation and the annual report. The figures of the latter show that the business of the society during the year 1908 was very satisfactory, a large increase having been made both in the number of the members and in the financial reserves. Prospectuses and all further particulars can be obtained on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, London, W.C.

AT the meeting of the Royal Meteorological Society on April 21st, Mr. Baldwin Latham, M.Inst.C.E., read a paper on percolation, evaporation, and condensation, giving the results of his observations at Croydon during the last thirty years. Two percolation gauges were used, both exactly a superficial yard in area; each contained a cubic yard of natural soil, one of chalk and the other of gravel. The average annual amount of percolation through the chalk gauge was 10.84 in. and through the gravel gauge 10.34 in. The average yearly rainfall was 25.46 in. It appeared that the rate of percolation was governed by the rate of rainfall, for when once the gauges had become sensitive by being thoroughly wetted, the rate at which rain percolated depended entirely on the quantity of rain immediate falling. The evaporator used for determining the evaporation was a floating copper vessel 1 ft. in diameter supported by a life-buoy ring, connected by four arms with the evaporating vessel, the whole being floated in a tank 4 ft. internal diameter containing about 3 ft. depth of water. The average annual amount of evaporation by this gauge was 18.14 in., and the average amount of condensation was 0.36 in.

British Medical Journal.

SATURDAY, MAY 8TH, 1909.

OPHTHALMIA NEONATORUM.

It will be remembered that at the annual meeting of the British Medical Association in Exeter in 1907 the Section of Ophthalmology, having discussed a paper by the late Mr. Simeon Snell, relating the results of an inquiry into the cause of blindness in 350 inmates of a blind school, adopted a resolution expressing the opinion that the time had come for the British Medical Association to take action for the prevention of ophthalmia neonatorum. The Council of the Association accordingly appointed a special committee to investigate and report upon the subject, and subsequently, upon the recommendation of the committee, asked the Ophthalmological Society, the Royal Society of Medicine—through its Sections of Medicine and Gynaecology and Diseases of Children—and the Society of Medical Officers of Health to appoint additional members, while at the same time the co-operation of the Central Midwives Board was invited. The committee thus constituted, consisting of representatives of ophthalmology, obstetrics, public health, medicine, surgery, and pathology, with Mr. Sydney Stephenson as chairman, has presented a valuable and voluminous report, which with its appendices is published in the SUPPLEMENT for this week.

It will be at once seen in what a painstaking and thorough manner the committee has discharged its duties. Medical practitioners and well-trained nurses will not need to have pointed out to them that ophthalmia neonatorum is a terrible scourge, which even now accounts for upwards of 10 per cent. of all cases of blindness in this country, while at least one-third of the inmates of blind schools are there because of this disease. In spite of facts of this kind which have been published from time to time in the reports of institutions for the blind appearing in the daily press, the greatest ignorance still prevails among the general public. The committee will deserve the gratitude of the nation if it succeeds in making widely known the deplorable results which ensue when the disease is improperly or inadequately treated.

There can be no doubt that the first recommendation of the committee—to the effect that ophthalmia neonatorum should become a notifiable disease—ought to be carried out, for not only would it lead to proper treatment of cases occurring in the practice of midwives, but it should educate the local sanitary authorities to recognize that the malign influence of the disease is not one whit less grave in its social effects than that of many of the maladies now included in the list.

How often do we hear it said with justifiable admiration and pride that an elderly person has had sight restored through the successful removal of a cataract, for this is one aspect of blindness which specially appeals to the lay mind, although it only means that a person whose life is well-nigh spent is enabled to see for the few more months or years which remain. Of how much greater importance is it for a child on the threshold of life to be saved from spending the whole of it in a world he has for ever been debarred from seeing! Every set of figures, no matter from what source they are collected, shows that ophthalmia neonatorum is responsible for a great number of cases of blindness, and the profession and the public alike must realize that it is a disease particularly amenable to treatment if only appropriate remedies are applied in time. Once let that short time pass and all may be lost.

The late President, whose death we have so recently had to deplore, and who was a distinguished member of this committee, found that in the Sheffield School for the Blind no fewer than 42.36 per cent. of the inmates were there from the direct results of this disease. In the London County Council schools for the blind Mr. Bishop Harman found that 36.36 per cent. of the pupils had lost their sight from ophthalmia neonatorum; and, as he added, were it not for certain fallacies the percentage would exceed 40. Others have recorded similar results.

With regard to the prevention of the disease, the methods to be adopted may be classed under two heads—administrative and medical. Obligatory notification is already adopted in many European countries, while in others, such as Great Britain, the machinery is all in readiness, and it requires little more than a stroke of the pen to include it among those which are already on the list. If this were done it would arouse public interest, it would secure proper treatment for the patient's eyes at the earliest possible moment, others would be safeguarded from infection, and exact statistics would become available.

It has been objected that notification would imply a slur on the parents' morality, and it is true this might be so if the gonococcus alone was responsible for all cases of ophthalmia in the newborn. This is not the case, for a fair number are due to other organisms; but even if this were the case, surely we have no right to neglect precautions which will certainly prevent blindness because we are afraid of casting a slur on the parents.

Every one should be instructed in the awful risk which is run when the disease is either not recognized or not treated adequately. No acute disease, perhaps, is so easily cured as is ophthalmia neonatorum. So much is this the case that an ophthalmic surgeon would consider it little short of a disgrace, either to himself or to those who were supposed to carry out his directions, if an eye were lost which had a clear and unulcerated cornea when he first saw it. In the case of children sufficiently robust to give them a reasonable chance of reaching adult age the eyes are saved in probably 99 per cent. or even more.

Whether Credé's prophylactic method of instilling a 2 per cent. or a 1 per cent. solution of silver nitrate in every child's eye directly after birth should be adopted in all cases is a matter which admits of some discussion. A large number of cases treated in fifteen Continental maternity hospitals before the introduction of this method yielded an average of 4.05 per cent. of cases of ophthalmia neonatorum, afterwards the percentage fell to less than 1. It is probably at the present time the best prophylactic measure known, and the committee states its opinion that in lying-in hospitals and departments maintained at the public expense the routine employment of a 1 or even a 2 per cent. solution of silver nitrate is amply justified, since the public has a right to protect itself against the burden of preventable

blindness. The committee also recommends that in extern hospital and Poor Law practice the same solutions should be employed as a matter of routine. With regard to private patients, the committee considers that some measure of prevention, be it aseptic or antiseptic, should be adopted in the case of every infant born alive, and that when earlier infants of the same family have developed ophthalmia the application of an efficient antiseptic to the eyes as soon as possible after birth appears to be unconditionally indicated. The committee states that "cases of ophthalmia without adequate treatment have been found to occur amongst cases attended by medical practitioners, as well as amongst those attended by midwives," and it cannot be doubted that every possible means should be taken to ensure that all medical men, all nurses, all mothers, and in fact every one who is likely to be employed in attending a woman in her confinement, should be able to recognize the disease at once, and to know the importance and the nature of the steps which should be taken, without the least delay, so soon as any discharge is seen in the baby's eyes, or the fact that the mother has a leucorrhoea is recognized. There can be little doubt that this necessary knowledge would more speedily become general if the disease had to be notified. The result would be that hundreds and thousands of children would have eyesight who are at present doomed to permanent blindness, while the State and the charitable public would be spending pence where they are now spending pounds in keeping up institutions, and in keeping those who through blindness are incapable of maintaining themselves.

The valuable work done by the committee, under the able chairmanship of Mr. Sydney Stephenson, can be appreciated by any one who will read the report, which is full of interest not only to the medical profession, but to the public at large.

IMMUNIZATION AND RESPONSE IN INFECTIVE DISEASES.

IN a paper recently read before the Royal Society of Medicine, and also published with additions in book form,[1] Dr. E. C. Hort discusses and criticizes the present treatment of infective diseases by means of bacterial vaccines. His thesis is that, whereas the production and maintenance of immunity to infection are generally considered to be questions of protection against the invading parasites and their products only, this interpretation ignores factors such as autolysis and other anomalies of cell metabolism, and the toxic products of those anomalies.

The direct methods at present employed for fighting bacterial diseases—the use of antitoxins, antiserums, and bacterial vaccines ("hetero-inoculations," as Dr. Hort names them)—are therefore on this hypothesis to be considered as partial measures; for the full defensive forces of the body to be called into operation, the preferable method would be to combine immunization to bacteria and their products with immunization to the products of altered cell metabolism and of tissue disintegration—"somatic products," as these may be termed. There can be little doubt that in spontaneous cure of infective diseases this actually takes place; in croupous pneumonia, for example, the autolysis of the exudate, which is performed by somatic products, namely, enzymes, brings about resolution.[2]

Dr. Hort believes that by "auto-inoculation," in which the patient is inoculated with his own products, bacterial and somatic, Nature's methods may in many instances be more closely imitated than by hetero-inoculation. It has been shown by Sir Almroth Wright and his co-workers that in tuberculous disease for example, movement, active or passive, is accompanied by an auto-inoculation, as judged by alterations in the opsonic index. Wright admits that auto-inoculation presents some advantages over hetero-inoculation—for example, the correct vaccine must inevitably be employed, and the lymph at the site of a local infection impregnated with bacterial products is replaced by fresh lymph; but he considers that these advantages are outweighed by disadvantages, such as the impracticability of adjusting the dose of bacteria and their products, the possible dissemination of the infecting organism, etc.[3] In these conceptions Wright considers bacteria and their products only, and does not appear to take into account the possibility that the somatic products derived from the tissues of the infected body play a part in the production of the disease syndrome.

The evidence that response in a bacterial infection is due both to bacteriotropic and to cellulotropic substances must necessarily be indirect, but a consideration of the following facts renders this view, to say the least, extremely probable. Various forms of cell degeneration are accompanied by the liberation of proteolytic ferments; albumosuria is not infrequent in extensive suppuration, in pneumonia, and in malignant disease in which the growths are undergoing softening and necrosis. The anaemia and cachexia of malignant disease in the early stage may with great probability be attributed to the action of the products of autolysis of the new growth. Ferments as a general rule give rise to pyrexia, and the intermediate products of ferment action are likewise pyrogenetic. In the autolysis of nerve substance choline is liberated, and may readily be converted into the highly toxic neurin. In extensive burns, in which death rapidly follows before the supervention of sepsis degenerative changes are found in the organs identical with those met with in acute infections,[4] the cell destruction resulting from the burn being thus followed by the development of somatic products possessing toxic action comparable to that of a bacterial toxin. The fluid of an abscess is rich in tryptic ferments, and the normal antitryptic action of the serum has been shown to be increased in various infections indicating the liberation of tryptic ferment with a corresponding response, and the increased formation of antitrypsin. Therefore Dr. Hort is probably right when he maintains that the indications of response on the part of the body to an infection are indications of response not only to bacterial, but also to somatic products.

Conceding that vaccine therapy has achieved notable victories, at the same time it sometimes fails—how often we are, perhaps, not in a position to judge, as it is generally the successes, and not the failures, that are recorded. By vaccine therapy response to the bacterial part of the infection is alone educed, and it therefore seems legitimate to conclude that in some cases at least, if response could also be evoked to the somatic part of the intoxication, increased benefit

[1] *Rational Immunization in the Treatment of Pulmonary Tuberculosis and other Diseases.* E. C. Hort, B.A., B.Sc., M.R.C.P. Bale, Sons, and Danielsson. 1909.

[2] Flexner, *Univ. of Pennsylvania Med. Bull.*, July, 1903.

[3] See Herter Lectures, *Lancet*, August 17th and 24th, 1907. McCrae, *Trans. Assoc. Amer. Phys.*, xvi, 1901, p. 153.

would result. To achieve the latter by artificial means would appear to be a difficult task, but Dr. Hort believes it may be done by "auto-inoculation." The various measures that have been employed in the treatment of localized infections, such as poulticing, cupping, counter-irritation, and, more recently, Bier's methods of inducing hyperaemia and active and passive movement, act partly by determining a "flushing-out" action, partly by distributing the products, bacterial and somatic, throughout the body, so that they act as vaccines; in other words, these measures in part constitute a process of auto-inoculation. Time alone can show what method is the best for inducing reaction and response—whether hetero-inoculation or auto-inoculation, or a combination of the two; but Dr. Hort has made out a good case for a careful trial of "auto-inoculation."

It is desirable, whatever form of inoculation be employed, to have means of gauging the amount of response. Of these, the general condition of the patient, the progression or retrogression of the disease, as discerned by the clinician, goes for much, and cannot be neglected, in spite of the sneers sometimes levelled at it by the "laboratory" man. Opsonic determinations have also of late been much employed for the purpose, and, could they be relied on, might convey considerable information on the response—at least, to the bacterial part of the intoxication. It must be admitted, however, that the opsonic technique is laborious and extremely delicate; it often does not deal with the actual organism of the infection nor concern itself with possible variations in the phagocytic power of the leucocytes employed. Yet different strains of an organism do exhibit variations in their capacity for phagocytosis, and Shattock and Dudgeon[5] assert that the leucocytic cells vary like the serum. Greenwood,[6] from statistical considerations, estimates that opsonic determinations within the limits between 0.8 and 1.3 are probably unreliable for a count made on 25 cells, and doubts if samples of 50 or 100 cells give results of much greater accuracy. The fact that the opsonic index may alter as a result of movement—for example, walking to hospital—in consequence of auto-inoculation, and, lastly, the varying results obtained by different investigators working with the same serums, as recorded by Dr. Hort,[7] indicate that very material uncertainty exists as regards opsonic determinations as at present carried out.

Dr. Hort places much reliance on the temperature curve, particularly a modified curve in which the evening temperatures alone are charted, as indicative of the response to auto-inoculation, and the illustrations he gives in his paper seem to bear out his contention. He moreover points out that in some cases of tuberculosis the absence of pyrexia, so far from being satisfactory, may indicate an absence of response and an actual progression of the disease.

Studies on the antitryptic power of the serum have recently been commented on in these columns,[8] and variations in this factor may in future be of value both in the diagnosis of infective diseases and in the estimation of the amount of response to treatment.

This survey suggests that much remains to be elucidated before we shall be in a position completely to understand the nature of the disease complex in an infection, that vaccine therapy by hetero-inoculation is not the final method of treatment, and that the indications derived from opsonic determinations must at present be accepted with a considerable degree of caution.

[5] *Proc. Roy. Soc. Lond.*, B., vol. lxxx, 1908, p. 165.
[6] *Proc. Roy. Soc. Med.*, II, No. 5, 1909, Pathog. Sect., p. 145.
[7] BRITISH MEDICAL JOURNAL, 1909, February 13th, p. 400.
[8] Ibid., 1909, February 20th, p. 489.

ANTITYPHOID INOCULATION.

THE current number of *Biometrika* contains a valuable study of inoculation statistics by Mr. G. D. Maynard of Pretoria.[1] By the help of biometric methods, Mr. Maynard has determined the relation between immunity from typhoid and inoculation and between the latter and recovery from the disease when incurred.

With respect to the first point, the result is that while the figures from the Transvaal show no association between immunity and inoculation, the correlation coefficients being actually negative, the figures for two sets of Indian data give an appreciable positive value (0.2395 ± 0.0118, 0.2556 ± 0.0095) and the 17th Lancers (Indian experience) and Coldstream Guards (Cairo experience) yield a moderately high correlation (0.8502 ± 0.0593, 0.4987 ± 0.0577). Material bearing on the problem whether inoculation modifies the disease if subsequently acquired was less extensive and the co-efficients obtained were not significant, having regard to their probable errors. Mr. Maynard was also unable to find any evidence in support of the contention that the protection conferred by inoculation does not attain its maximum at once. The author discusses the possible causes of the discrepancy between the results obtained from Indian and South African material, and is inclined to attribute it to a relatively greater frequency of paratyphoid infections in South Africa. Although the difference between paratyphoid and true typhoid organisms is, at the most, specific and not generic, this source of failure may quite well have influenced the result; those who recall a controversy in these columns a few years ago will remember that still grosser causes of error were alleged to exist in some of the South African returns.

In a note to this memoir, Professor Karl Pearson criticizes adversely the evidence afforded by the 17th Lancers' experience, and concludes that: "Until a far "higher standard of statistical observation and "statistical reduction is adopted, we cannot possibly "call, with Lieutenant-Colonel Leishman, the report "of Lieutenant Luxmore a striking piece of evidence "as to the protective effect of the inoculations."

Professor Pearson's criticisms, like everything which emanates from so distinguished a statistician, deserve careful study, but we have not been able to satisfy ourselves that the arguments he adduces warrant quite so sweeping a condemnation. Professor Pearson condemns the inclusion in the returns of officers and their wives, who form about 13 per cent. of the inoculated group, and "whose environment and "average age probably differ much from those of the "non-commissioned officers and men." This defect would have been of more moment in the case of a native regiment, the officers of which are generally senior men, than in that of an English regiment stationed in India. It would have been interesting if the correlation had been re-worked, using Mr. Maynard's table, with a deduction of 13 per cent. from the subtotal of inoculated persons not attacked by typhoid,

[1] Statistical Study of Antityphoid Inoculation. By G. D. Maynard F.R.C.S.E. *Biometrika*, vol. vi, part 4, pp. 366-376.

so that we could form some idea of the magnitude of the error possibly involved. To test the matter quickly, we recalculated the correlation from Mr. Maynard's table as it stands and from the table modified as suggested above, by means of the approximation, Q_5. We found in this way that to deduct the officers and their wives reduced the correlation only by a little more than 6½ per cent., but unfortunately, owing to the magnitude of "h" and "k," the value of Q_5 differs widely from the true correlation, and the approximation ceases to be so useful for comparative purposes.

Professor Pearson goes on to contend that "the "so-called 'controls' cannot be considered as true "controls until it is demonstrated that the men who "are most anxious and particular about their own "health—the men who are most likely to be cautious "and run no risk—are not the very men who will "volunteer to be inoculated; thus a spurious correla- "tion may be produced between attack and absence "of inoculation. The age frequency of both classes "ought to be further given in every report. Clearly, "what is needed is the inoculation of one half only of "the volunteers, equal age incidence being main- "tained, if we are to have a real control." Since the valuable papers of Dean and the Ledinghams much attention has been directed to the importance of typhoid carriers. We believe that expert opinion in India inclines to the view that contamination of food in preparation and of sanitary offices by typhoid carriers is a much more important source of regimental typhoid than casual infection. Should this be a correct view, the personal carefulness of the men can be of little moment as a means of prophylaxis. It may be remarked that the ideal control proposed by Professor Pearson is hardly likely ever to be carried out, however desirable such a consummation might be. Any one placed in authority who, while believing that antityphoid inoculation afforded some measure of protection against so grave a disease, refused to confer such protection upon volunteers, would take on himself a somewhat grave responsibility.

THE BUDGET

THE Budget proposals as they affect the medical profession are discussed on page 1133. As will be seen, it is difficult even for an expert confidently to anticipate the full effect of the proposals as they will work out in practice. It is not a great Budget, it does not contain any original ideas, and is no doubt largely the result of compromise, but on the whole it shows a desire to be just or at least lenient to men whose chief asset is mental and physical health. It seems probable that the income-tax proposals will not alter the position of the large majority of the members of the medical profession, while the fact that the rate on the earned portion of incomes between £2,000 and £3,000 a year still remains at 1s., or less than the full rate, will be appreciated by those who in middle life are reaping the reward of early exertions, although it does not, owing to the increase in the general rate, directly benefit them. The fresh inroad on unearned incomes, often incomes derived from savings very hardly earned, will be felt as an injustice, and will tend to induce many men to postpone the hour of retirement, for they will not only feel the immediate pressure, but will dread that the fatal facility with which the tax can be increased may lead to fresh encroachments on the provision they have been able to make for old age The Chancellor of the Exchequer was, however, confronted by a financial position with which it was not easy to deal, and the total amount of the deficit was no doubt only realized at the last moment, for the Budget bears obvious traces of haste. Otherwise, we imagine it would not have contained such a proposal as that to increase the duty on proof spirit without a proviso to exempt spirit used for medical and scientific purposes. It does not seem possible at present to determine what will be the net result of the new imposts on motor cars and petroleum, but the tentative calculations we have made render it probable that the extra cost to medical motorists will not be large even if they have to pay for petrol on the higher scale. On the whole, as the bystander said to the man who was ridden over by a troop of horse and found himself unscathed, there is much to be thankful for.

"AN UNSAVOURY BAIT."

UNDER this heading we had occasion to comment in the JOURNAL of December 19th, 1908, p. 1831, on the highly unseemly manner in which a certain "beef juice" was advertised in a French publication entitled *Chanteclair*. That periodical, though ostensibly a "bimonthly journal," is in reality a trade circular in which the "beef juice" referred to is pushed by the help of coloured portraits of well-known members of the medical profession. The one on which we felt it our duty to remark was of a character that can only be called disgusting. Now our attention has again been called to the issue for April, in which a Spanish professor in his official robes is represented as demonstrating on a half-dissected girl, who is smoking a cigarette and apparently enjoying the procedure. The figure occupies the foreground, and of course the undissected side is shown. Without being actually indecent the picture is suggestive, and the accessories—the arm and breast and the skin of the leg, lying on an ornamental couch in the background—are in the worst possible taste. What strikes us most about the thing is its extreme silliness as a means of inducing people to buy the "beef juice" which it is intended to advertise. It is impossible to imagine that it is intended to convey the suggestion that the "beef juice" is made of the *disjecta membra* of the subject. Yet it would be difficult to say what else can be meant, unless we assume that the nude figure, hideous as it is in its crude realism, is intended to attract attention. We are glad to learn from a correspondent that he has brought the fact that the circular is sent about in an open cover to the notice of the Postmaster-General. The official reply is that the circular would not have been delivered if its character had been observed; and it is added that instructions have been given for a watch to be kept in case any other circulars of the same description are received. We said in our previous note on the subject that the firm responsible for the issue of these circulars might amend the error of its advertising ways, at least in this country, if it could be brought to realize that even the most wonderful "beef juice" could not be forced on the medical profession by means which produce disgust. It has not chosen to take the hint, but now that it has come under the ban of the Post Office its eyes may possibly be opened. The thanks of the profession are due to the practitioner who took the trouble to communicate with the Postmaster-General on the subject.

THE STAGE OF ROYALTY.

IT will be a bad day for royalty when people cease to take an interest in its comings and goings, its sayings and its doings, its joys and its sufferings. The publicity is no doubt often inconvenient; but it is

better than the indifference with which a nation would regard the "cast iron king" suggested by Jean Paul Richter as a useful substitute for a human sovereign. The people, indeed, may claim a right to know when a possible heir to the throne is born and when a ruler is in danger of death; this was admitted by Sir Henry Halford in his well-known pronouncement about bulletins. There are royal personages who hate the notion that anything about them smells of mortality, like poor Lear's hand; there have even been some who took it ill that it should be thought that kings were subject to death. Did not a tactless courtier have to explain away an allusion to *le feu roi d'Espagne* by saying it was a title they assumed? We have it also on the authority of a court official of a bygone day that a queen of Spain had no legs. At the present day a royal personage has the unenviable privilege of learning every detail of any disease he may be believed to suffer from, and to read of himself, as the Emperor Frederick might have done in an English newspaper, as "rotting on his throne." They are not allowed to be under any of the illusions as to their state that may be cherished by their poorest subjects. They are born, they live, and they die in public; their coming into the world and their going out of it are performances that must be gone through with the whole of civilized mankind looking on. Quite lately, before the happy event which has gladdened Holland, speculation and suspicion, if we are to believe the newspapers, were rife. Special correspondents hung about the doors and invaded the backstairs of the palace at La Hague. One scribe wrote: "The situation here is of an extraordinary "character. After a day of painful excitement, of wild "rumours, and of tumultuous scenes in the streets, a "strange quietude reigns in The Hague. All day long "men and women have been talking together gravely, "filled with perplexity and gloomy feelings. It seems "as if the old apathy had settled down upon the "people; as if, indeed, the old days of indefinite "expectation and patient waiting had begun all over "again. Yet beneath this quietude there is profound "emotion, an uneasiness which is not expressed so "much in words as in faces full of apprehension." People were inclined to take it ill because the Queen seemed to be a little longer than she should have been in going through her part! The public mind was in the same state of excitement and suspense about the young Queen of Spain's first baby, and there were headshakings and hints of doubt among the quidnuncs as to what was to happen or whether anything was to happen. And all this because no one except those in attendance on the august ladies who were about to enter on their time of travail was in a position to know accurately when the event was to be expected. Fortunately for the leading actresses in these dramas it may be surmised that they were not allowed to learn that they were keeping the public waiting. But on the physicians, had they been of nervous temperament, what may figuratively be called the cries for the lifting of the curtain might have a disconcerting effect. Sovereigns who know human nature well are careful to encourage the doctor. When Dubois was anxious about Marie Louise at the time of the birth of the King of Rome, Napoleon told him to treat the Empress exactly as if she were a woman from the Faubourg St. Antoine. When Louis XIII was born apparently dead, and the midwife was distracted, Henry IV asked her to treat the child in the way she was accustomed to do in such cases. To most of us dying in public would add incalculably to the unpleasantness of the situation. But kings have to go through the performance almost literally under the public eye. The old Emperor William seems to have been troubled by this in his last moments, for among the mutterings heard just before he passed away were the words *Zu viel Menschen* (Too many people). Nevertheless royalty is less constantly on the stage than it used to be when the Grand Monarque held his levees seated on a close stool. This is due to the change of manners, which has brought with it some impairment of the sense of the dignity that hedges about a throne.

SEWER AIR.

Since the time when the construction of sewers became general there has always been a more or less wholesome dread of "sewer air." That dread found expression by Sir John Simon, when in one of his classical reports to Local Government Board he wrote: "Filth does not only infect where it stands, but can "transmit its infective power afar by certain appro- "priate channels of conveyance."[1] The belief that specific diseases were transmitted through the air of sewers was rather rudely shaken some twenty years ago, when Carnelly and Haldane published the results of experiments they had made on the air in sewers connected with the Houses of Parliament and in Dundee. The conclusions they came to, and which were subsequently endorsed by Parry-Laws, were that the air of sewers was much better than might have been expected, and that it contained a much smaller number of organisms than any class of house. Not many years afterwards, however, a contrary opinion was expressed by Dr. David Arthur,[2] and only within the past year or two Horrocks and Andrewes have by independent investigation demonstrated that characteristic sewage bacteria are to be found in the air of sewers. About two years ago the Corporation of Manchester asked Professor Delépine to investigate the influence of sewer air upon health, and for that purpose there was constructed for him in the vicinity of the Public Health Laboratory grounds an experimental manhole and experimental rooms. In one of these rooms experiments could be carried on with garden air, and in the other with sewer air. During the whole of last year Professor Delépine conducted his investigations with the assistance of Drs. Sidebotham, Sellers, and Fowler, and of Mr. Gaul and Mr. Heap. The report which he has just issued discloses an amount of painstaking research on the part of all those concerned which is beyond praise. The investigations included observations and analyses relating to the flow, characters, and composition of sewage, their hourly, daily, and seasonal variations; the bacteriological examination of sewage and of sewer air; the examination of sewer air for the purpose of ascertaining whether it was contaminated with gases not normally present in sewers, and, lastly, experiments on animals. The conclusion to which Professor Delépine has come as the result of his observations is that the air of a fairly well-constructed sewer carrying moderately dilute sewage of average composition is free from appreciable noxious properties. He is careful to qualify this opinion by saying that it is not applicable to the air of sewers where, owing to the formation of deposits, or for some other reason, the air has become loaded with an unnecessary amount of noxious gases not usually present under other conditions; nor does it apply to sewers receiving certain kinds of trade effluents or waste products, nor to the air escaping from foul drains or pipes, which air may be quite different from sewer air, or may

[1] *Public Health Reports of John Simon.* Edited by E. Seaton. Vol. ii, p. 464.
[2] *Journal of State Medicine*, 1894.)

contain particles of dried material not to be found in sewer air. He considers that in all probability the bad effects which have at various times been attributed to sewer air should have been considered as due to changes in the sewage which need not have taken place, or to admixture with noxious products which might have been prevented.

FRIENDLY SOCIETIES IN THE CLUTTON DISTRICT.

IN September last the practitioners residing in the district of Clutton, which comprises the villages of Midsomer Norton, Radstock, Peasdown, Paulton, and Timsbury, in the area of the Bath and Bristol Branch of the British Medical Association, made a request to the friendly societies of that district for increased remuneration. The rate asked for was 5s., instead of 4s. per annum, for adults, and 2s. 6d., instead of 2s., for juveniles. The district is a heavy one to work, and the collieries furnish a number of serious cases. The reasonableness of the demand may best perhaps be gauged by the modesty of the remuneration asked for juveniles, for it is not the experience of the profession that children require less attention than adults. The request was refused by the majority of the societies, and the local medical men, who are unanimous, terminated their engagements. The friendly societies have since started the Radstock and District Medical Institute, and succeeded in obtaining a medical man to undertake the duties from March 25th last. We hear that the usual difficulties incident to an institution of this kind are already being experienced, and that a new doctor is wanted by the institute. Carried on as it is under conditions disapproved not only by the medical men of the immediate neighbourhood, but by the Bath and Bristol Branch of the Association, representing the medical profession of those cities and of the surrounding districts, it is probable that the misguided members of the friendly societies will soon see reason to regret the establishment of the institute. Apart from the probability of a succession of new doctors, no institution of this kind can offer such good value in medical attendance as the profession of the Clutton district did, as for many years the medical work of the friendly societies has been "pooled," the members having choice of practically all the local doctors at a very modest rate of payment.

THE EUGENIC VALUE OF CRIMINALS.

AMONG the many points of view from which the criminal class may be regarded is that of the value to be assigned to it when drawing up a balance sheet of the physical assets of the nation, and this in effect was the text of a discourse delivered by Dr. W. C. Sullivan, of H.M. Prison, Holloway, at the April meeting of the Eugenics Education Society. As he stated, any attempt to assess the value of criminals from the point of view of eugenics involves the measurement of what is a purely sociological group by a biological standard, and hence fallacies and confusion must arise unless sociological data are rearranged on biological lines, sufficiently at any rate to permit of criminals being classified psychologically. While pointing out that as this step has not at present been taken it is not yet possible to determine the eugenic value of members of the criminal class on really scientific lines, Dr. Sullivan maintained that it might be argued in tentative fashion that all the phenomena of crime indicated a strong probability that criminals in their innate characteristics do not differ essentially from the average man. He suggested, too, that if crime were roughly compared with some bio-social entity such as insanity, in which the influence of innate tendency was potent, the conclusion might be drawn that criminals were made rather than born; or, in other words, that crime was the direction given by environment to relatively normal aptitudes. Though criminal conduct is often associated with defective organization, Dr. Sullivan held that even then the criminal conduct was the outcome not of a specific tendency to crime, but merely of a general debility of mind most marked, perhaps, in the sphere of impulse and feeling. So far, therefore, as its negative indications are concerned, eugenists need apparently concern themselves only with the minority of the criminal class, and with that merely as part of the general problem of feeble-mindedness. Nevertheless, the remainder—possibly a majority of the criminal class—still have some interest for eugenists, for Dr. Sullivan was probably right when he suggested that in the conditions prevailing in the lower strata of society there is, perhaps, a tendency for some of the best physically endowed youths to be directed into criminal courses. From this it would follow that measures commonly taken by society to suppress crime may be operating in such fashion as to impoverish the race by discouraging stocks in which energy and initiative are most abundant. If this be the case, it is clear that any method of treating crime likely to prevent the development of criminal habits in adolescents who are physically well endowed but show a tendency to drift into an antisocial career, ought to have a distinct eugenic value. Such a system, Dr. Sullivan contended, is the Borstal system of treating young criminals, and on this account he holds it to have a special claim on all interested in the physical welfare of the race.

IN THE NAME OF THE PROPHET—SOAP!

IN the classic legend of the Great Panjandrum it is related that a great she-bear, coming down the street, popped its head into a window and exclaimed, reproachfully, "What, no soap!" If this devotee of cleanliness had only known the right place to go to, she would not have been disappointed. But perhaps *Nash's Magazine* did not exist at the time. At any rate, there would be no excuse for any one making the same complaint now. We know nothing ourselves of the periodical in question, but two or three correspondents have called our attention to the following advertisement which has appeared therein:

63, Harley Street, W.,
December 18th, 1908.

Messrs. ———.

Dear Sir,—Thank you for the samples of soap you so kindly sent me. I feel in honour bound to tell you that of all the ENGLISH SOAPS I examined by my Hydrolysis test as published in the *Chemical Trade Journal*, December 12th, 1908, your soap called "Buttermilk Complexion" was far and away the best of THE ENGLISH SOAPS, judged from the standpoint of slow and equal hydrolysis and copiousness and fulness and maintenance of "lather." This is not a testimonial, but a statement of sober fact which I feel bound to furnish you with in return for your courtesy. Please make a point, if you find this plain statement of any use to you, to beware of anyone being under the impression that I am in any way fiduciarily interested in giving you this statement. Please accept this as it is meant and believe me yours very faithfully,

F. W. FORBES ROSS, M.D., F.R.C.S.Eng.,
D.P.H., etc.

This "statement of sober fact" is evidently considered so valuable by the highly respectable firm which sells the article praised that it is reproduced in facsimile. The soap may, for all we know to the contrary, have all the virtues which the author "feels bound in honour" to set forth. His appreciation of the soap is evidently as genuine as it is

disinterested; he might, in fact, say of it what Montrose said to his mistress:

> I could not love thee, dear, so much
> Loved I not honour more.

Of course we accept the author's assurance that he is not in any way fiduciarily interested in testifying to the fine qualities of the soap which has had the good fortune to gain his esteem; this we do all the more readily as the expression seems to us to have no particular meaning. Still, "fiduciarily" is, like "accommodated" according to Bardolph, "a word of exceeding good command," and such as a writer of a testimonial—we beg pardon, of a statement of sober fact—may use. If Dr. Forbes Ross were asked to define exactly what he means by it he might answer, after the manner of Falstaff's comrade in regard to the word which won the approval of Justice Shallow: "Fiduciarily inter-"ested; that is when a man is, as they say, fiduciarily "interested; or when a man is—being—whereby—he "may be thought to be fiduciarily interested; which "is an excellent thing." There are, to be sure, old-fashioned persons who, having regard to the dignity of the profession, may not look upon the publication of a letter by a medical man in praise of a soap in which he is not "fiduciarily interested" as an excellent thing. The hucksters of Constantinople used to cry, "In the name of the Prophet, figs!" But even a prophet of the Yellow press, if he happens to be a "Harley Street specialist," should not cry in the market place the soap of a firm which sends him samples out of mere kindness.

POISONING BY CARBONIC OXIDE.

Disused colliery workings are sometimes allowed to be on fire for months or years; when this happens the products of slow combustion accumulate, and as the surface of the soil subsides, find their way through fissures to the surface of the earth; in this way they may gain entrance to houses through cellar drains or imperfectly cemented foundations. An accident of this kind is reported to have occurred at Cradley Heath, near Birmingham, involving the poisoning of eleven persons living in a row of six cottages built in 1897 on newly-made ground. As is usual in these singular cases it was only the ground floor rooms that contained enough gas to produce serious symptoms, so that as the occupants were sleeping upstairs they were not affected until they came down in the morning. A man named William Lloyd got up to go to his work, and was found by his wife and daughter, when they came downstairs, lying on the floor in what they thought was a fit. Summoning a neighbour, he was carried up to bed and a doctor was sent for. Some hours later Lloyd recovered and shouted to his wife for something he wanted, but getting no answer he went down and was horrified to find his wife, son, and daughter lying unconscious on the kitchen floor. Medical assistance was obtained and an examination made of the adjoining houses, when it was discovered that seven other persons were either unconscious or more or less stupified. The majority soon recovered, but Lloyd's wife and daughter had to be removed to the Guest Hospital. One of the medical men, Dr. Kelly, had a narrow escape from a serious accident, for while he was carrying a child from a bedroom he was overcome by the gas and fell downstairs, fortunately without sustaining injury. Dr. Tibbetts placed a bird on the steps of one of the cellars, and within five minutes it expired; a canary in another house died, and a dog was discovered to be unconscious. There are said to be signs of a subterranean fire close to the property, and, acting on medical advice, the occupants have temporarily abandoned their houses, which have been taken charge of by the sanitary authority.

LONGEVITY AND SANITATION.

Bulletin No. VIII of the Census and Statistics Office of Canada consists of two papers read by Dr. Archibald Blue at the McMaster University Convocation and the last annual meeting of the American Public Health Association at Winnipeg respectively. The first paper deals with the effect of modern sanitation, not merely in lowering the death-rate, but in raising the average age at death of the adult population of a country. The two effects, though of course closely connected, are distinct. By a careful collation of the figures derived from registration statistics and census returns, Dr. Blue arrives at some very interesting results. In 1871 the mean age of the living was 23.50 years; in 1901 this had increased to 26.79 years, representing for the population of Canada 17,618,000 more years of life than would have been lived had the average duration remained what it was in 1871. This great increase of life Dr. Blue claims to be "a gift "that Nature has bestowed on a people who have dis-"covered and who submit to her laws." Taking as one group males from 15 to under 65—that is, the wage-earning period of life, Dr. Blue finds that the members of this group increased from 5,422 per 10,000 of all ages in 1871 to 6,074 in 1901. Assuming a dollar a day for 300 days as an average annual wage, this increase in the adult male population represents an increase of $53,146,200 in the year, which Dr. Blue rightly considers to be a strong argument for the economy of sanitation. Dr. Blue's second paper deals with the sanitary problems to be encountered in the development of the immense new provinces of Saskatchewan and Alberta, in which the population has increased in five years from 419,512 to 808,863, or 92.81 per cent. The need for sanitary education in such a population is exemplified by the fact that only a few years ago a "progressive town" in one of these provinces took its water supply from a river at a point below that at which its sewage was discharged into the same stream! Altogether this pamphlet contains a great deal of interest to sanitarians and statisticians.

DECLINING BIRTH-RATE IN AUSTRALASIA.

The continued decline in the birth-rate in the Australasian Commonwealth is attracting the attention not only of moralists but of statesmen. We learn from the *Australasian Medical Gazette* that at a recent session of the Victorian Anglican Synod the matter was discussed, and it was decided to invite the co-operation of the Victorian Branch of the British Medical Association in endeavouring to induce the Government to take some steps in the following directions: (1) That the manufacture and sale of preventive or abortifacient drugs and appliances be prohibited by law. (2) That advertisements of such drugs and appliances be prohibited. (3) That accommodation houses, nursing homes, and the like be placed under the supervision of the Department of Public Health. (4) That the police be instructed to report all infringements and suspected evasions of the law. (5) That the Church of England invite all other churches to co-operate with her in a vigorous crusade against an evil which the law cannot cope with unless the moral force of religious belief and action is behind it. (6) That medical men and chemists (wholesale and retail) be urged to lend their assistance in crushing out of existence practices which must, if allowed to con

tinue and grow, weaken the fibre and minimize the strength and vigour of our national life. (7) That careful and systematic inquiry be made as to the effect of modern athletic exercise on young women.

A MENTAL HOSPITAL.

THE need of a hospital for the observation and treatment of patients in the early stage of mental disorder is making itself acutely felt in New England. We learn from the *Boston Medical and Surgical Journal* that the Massachusetts Legislature having failed to act before the expiration of options on certain property in Boston and Lexington, upon which it was proposed to build hospitals for mental disease, the State Board of Insanity, through a special report, has asked total appropriations of £30,000 for a similar purpose. Plans for a five-story building have been drawn up, and the urgent need of the hospital is set forth in the report. We commend this example to the imitation of the London County Council, which surely has plenty of sites to choose from. The evil of delay is shown by the failure of the Massachusetts Legislature to take prompt action in a matter which should have been treated as urgent.

THE next session of the General Medical Council will be opened on Tuesday, May 25th, when the President, Sir Donald MacAlister, K.C.B., will take the chair at 2 p.m. The Glasgow Faculty of Physicians and Surgeons has appointed Dr. David N. Knox, late Surgeon to the Royal Infirmary, and Professor of Clinical Surgery, St. Mungo's College, Glasgow, to be its representative on the General Medical Council, in succession to the late Dr. Lindsay Steven.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

The Budget.—All last week was overshadowed by the introduction of the Budget, which occupied in its exposition some four and a half hours on Thursday. There are only a few points in it of medical interest. In conjunction with the proposed tax of 3d. a gallon on petrol used for motor vehicles there is the remission of half the new tax on motor cars in favour of the medical profession. The proposal to allow a reduction of £10 of taxable income as regards income tax for each child under 16 years of age for taxpayers whose income does not exceed £500 per annum is an interesting novelty. With a falling birth-rate in this country, the loss to the Exchequer may possibly be balanced by a great and national gain. The increase of the income tax from 1s. to 1s. 2d. will affect earned incomes over £3,000 a year and all unearned or partly unearned incomes. In all cases of earned incomes not exceeding £3,000 the tax will remain as at present—9d. in the £ up to £2,000, and 1s. between £2,000 and £3,000 per annum. The increased duty on proof spirit will add to the price of many medicines and so fall rather heavily on hospitals and some practitioners.

Antivivisection.—The opponents of vivisection show signs of activity in the House of Commons, and the Dogs Exemption Bill recently introduced gave evidence of the fact last week. The close of the discussion on mining accidents before 11, and the withdrawal of the second motion on the paper left some ten minutes on Wednesday night for private members' bills, and the Dogs Exemption Bill was moved without a word of explanation by its promoter, Mr. Ellis Griffith. For a moment or two it looked as if the bill might pass *sub silentio;* and then Mr. Samuel rose on behalf of the Home Office to oppose the second reading, mainly on the ground that the Royal Commission had not yet reported. While he was speaking, Mr. Whitley, who had been out to get a copy of the bill, rose and said that the bill which the House was asked to read a second time was not yet printed! The Speaker, thus appealed to, ruled that the fact of the bill not being printed was not an objection which he could take against the bill, but was one which might very probably weigh with the House. Mr. Samuel then moved that the debate be adjourned, so that it might be resumed when members could make themselves acquainted with the proposals of the bill. Sir F. Banbury spoke against the adjournment, and asked for a division that night. Mr. John Ward said his opinions on this matter had been considerably modified by his experience on the Commission, and he supported the motion for the adjournment, which, however, was not put, as 11 o'clock struck and the debate stood adjourned. Thus the attempt to pass a bill without any explanation of its contents and before it was printed was happily foiled.

Medical Officers (Scotland).—Mr. Cathcart Wason asked the Lord Advocate, last week, if he could state what parish councils had opposed granting to Poor Law medical officers protection against arbitrary dismissal and the same privileges as were enjoyed by medical officers in England and Ireland. Mr. Ure answered that the proposal had not, so far as he was aware, reached a stage which had provoked an active expression of opinion on the part of parish councils; and on this point he could add nothing to the reply given recently. Mr. Wason then asked the Lord Advocate if he was aware that in several districts in the Highlands and islands the poor had suffered from the action of certain parish councils in their treatment of medical officers; and if, in view of this fact, and that the question had been brought up at every election during the last ten years and that candidates invariably had expressed themselves favourable to a proposal which would indirectly benefit the poor, he would reconsider the position. Mr. Ure replied that he was not aware of any case in which the poor had suffered through the action of a parish council in the treatment of their medical officer. If the hon. member would specify any such case, full inquiry would be made by the Local Government Board. He was not aware that the question had been brought up at every election during the last ten years, and that candidates invariably had expressed themselves favourable to a proposal which would indirectly benefit the poor. Mr. Wason pushed the matter further home by asking if the proposal in the Education Act of last year giving teachers the right of appeal against arbitrary dismissal had been opposed by any school board in Scotland, and on what grounds were medical officers to be refused the same position as teachers. The Lord Advocate admitted that he knew of no protests from school boards as regards rights given to teachers under the Education Act, but he would not admit that the two cases were parallel.

The Sewage Disposal Commission.—In answer to Mr. Carlile, Mr. John Burns stated last week that the Royal Commission on Sewage Disposal was appointed in 1898. The total cost up to March 31st last was £56,061, including the net cost of stationery and printing, but excluding the cost of accommodation. He understood that an estimate had not been framed of the future expenditure which might be required. The Local Government Board were acting on the recommendations made by the Royal Commission in its fifth report. It was the Board's practice to advise local authorities to carry out these recommendations, but it had not issued any regulations on the subject.

The Belfast Health Commission.—In reply to Mr. Devlin, Mr. Birrell said that the recommendations of the Belfast Health Commission were so varied and complex that it was impracticable to give a general answer which would accurately cover all details. The corporation had dealt with certain matters pending the issue of the report of the Commission, and had put other matters in train since its issue. The Local Government Board, moreover, after considering the reply of the corporation to the report of the Commission, had addressed the corporation on March 13th last with regard to such of the recommendations as did not appear to have received suitable attention.

Workhouse Maternity Wards.—Mr. Cooper asked a question about a patient in Hammersmith workhouse who was put to do manual work fourteen days after her confinement. Mr. Burns answered that he understood the question referred to the case of an unmarried woman who was admitted to the infirmary of the parish of Hammersmith on March 3rd last and confined on the following day. He was informed that it was not the fact that the woman was mounted on steps and set to wash the paint on the walls. The woman left the infirmary on April 3rd, and was believed to have been married two days afterwards. He did not understand that she was ill and under treatment other than for a normal confinement before leaving the infirmary. There were no rules of the kind referred to, and at the Hammersmith infirmary all work performed by the patients was stated to be purely voluntary and of a very light character.

Small-pox at Bristol.—On Tuesday Mr. Burns said, in answer to Mr. Lupton, that two nurses at the hospital, while attending cases of small-pox, had slight attacks of an illness which was thought to show the initial symptoms of small-pox. Neither had an eruption of any kind, and both were well within three or four days. They had been revaccinated within two years, but he was unable to say from what source the lymph used was obtained. In answer to another question, Mr. Burns said that any comparison between vaccinated and unvaccinated children in relation to this matter should be made in respect of those children only who had been exposed to infection. At Bristol the persons who suffered from small-pox or were in contact with them were so carefully supervised that few unvaccinated children were so exposed. Of the children under 14 who were exposed to infection 9 were attacked by the disease. Of these 9, 2 had been vaccinated. Both attacks were abortive. The remaining 7 children were unvaccinated, except that 2 of them were vaccinated during the incubation of the disease. Of these 7, 3 died, all of whom suffered from confluent or black small-pox.

The Rats (Destruction) Bill.—A bill to provide for the destruction of rats has been introduced by Sir Charles McLaren, and is founded on similar lines to legislation now in force in Denmark, Hong Kong, Bermuda, and other States which has for its object to save the vast destruction of foodstuffs and other property caused by rats, which amounts to many millions of pounds sterling in every year. Private efforts have failed to reduce their numbers owing to the lack of proper organization and adequate resources. This bill is intended to arm public authorities with powers to cope with the evil, while protecting private interests from any resultant damage. The sanitary inspector or the inspector of nuisances will be the public ratcatcher under the bill unless the local authority appoints a special officer.

Sleeping Sickness in Nyassaland.—In answer to Mr. Rees, who asked what steps had been taken to preserve Nyassaland from sleeping sickness, Colonel Seely said that the agreement between England and Germany related only to Uganda and German East Africa. So far as Nyassaland was concerned, he was glad to say that the extensive investigations which were being made in that Protectorate had failed, up to the present time, to reveal the presence of the tsetse fly which transmits the disease. These investigations would be continued, but there was good reason to hope that Nyassaland was not exposed to the risk of an epidemic similar to that which had wrought such havoc in Uganda. In answer to a further question, Colonel Seely said that the fly did not, he thought, travel very far from its particular place. On the whole question, he would refer to the many reports which had been issued from the Colonial Office on the subject. The Government would do all they could in the matter, but there was not much fear at present of the disease spreading to Nyassaland.

Beri-Beri.—Mr. Cooper called attention last week to the views of Dr. Braddon[1] on uncured stale rice being the cause of beri-beri, and Mr. Churchill replied that he was aware of the theory held by Dr. Braddon and other medical men that beri-beri was attributable to the consumption of uncured stale white rice; and of the investigations into the question which were being conducted in the Federated Malay States. The Board of Trade were in communication with the Royal College of Physicians in regard to the steps to be taken for the prevention of the disease on board ship, and when their views had been received the suggestion requiring that only cured rice should be used for the food of Lascars on British ships would be considered.

[1] BRITISH MEDICAL JOURNAL, April 24th, 1909, p. 1007.

Fever among Civil Population in Malta.—Last week Colonel Seely stated, in reply to Mr. Lupton, that the number of cases of Mediterranean fever and of simple continued fever among the civil population of Malta in the years mentioned was as follows:

Year.	Mediterranean Fever.	Simple Continued Fever.
1897	568	107
1898	510	125
1899	822	114
1900	642	80
1901	624	60
1902-3 (financial year)	589	68
1903-4 ,,	573	35
1904-5 ,,	663	26
1905-6 ,,	822	22
1906-7 ,,	714	42
1907-8 ,,	501	5
1908-9 ,,	463	11

The Opium Traffic in Ceylon.—Mr. Walter Roch asked the Under Secretary for the Colonies whether the Ceylon Government had postponed the closing of its licensed opium shops during the present year pending a reference to the Secretary of State; and whether a statement had been received by the Secretary of State from three non-official ex-members of the Ceylon Legislative Council protesting against further delay in carrying out the policy unanimously recommended by the local opium commissioners in their report at the end of 1907? Colonel Seely replied that the facts were as stated in the first part of the question, but he should explain that the reason for the delay was that a difficulty had arisen as to the regulation of the supply of opium for medicinal purposes to the Vederalas, or native doctors, of whom there was a large number in the Colony. This difficulty had led to a further reference to the Secretary of State, who was now in communication with the Governor as to the best means of surmounting it. As regards the second part of the question, the Secretary of State had received the statement referred to, but for the reason already given had been unable as yet to take action in the direction suggested by the signatories.

The Death-rate in the Transvaal Mines.—In reply to Mr. Fell, Colonel Seely said on Tuesday that the death-rates were: Black, 31.601; Chinese, 6.788. The Chinese rates were habitually lower than the natives, but the native death-rate showed a considerable increase. Inquiry would be made as to the cause of this increase. He regretted to say that the increase in black deaths was considerable; the decrease in the Chinese deaths was obviously to be expected owing to the rapidly diminishing numbers of the Chinese. He should have thought it was sufficiently obvious that the number of Chinese persons liable to diseases connected with the mines must be much less. They must by this time be nearly all dead or returned to China. In answer to a further question, he said that it did not appear that the increase in the black death-rate could be attributed to the labourers having been drawn from a different area.

Sydney.

[FROM OUR SPECIAL CORRESPONDENT.]

NEW SOUTH WALES BRANCH.

THE annual meeting of the New South Wales Branch of the British Medical Association was held on March 26th, when the retiring President, Dr. G. H. Abbott, delivered his address. He rehearsed some of the important matters which had engaged the attention of the Branch during the past year, and sketched out a programme of work for the future. Naturally one of the most important matters referred to was the dispute at present in progress between the friendly societies and the British Medical Association (New South Wales Branch) with regard to the enforcement of the wage limit. At the meeting of the Australasian Medical Congress in Melbourne last year some resolutions were passed agreeing to the necessity of enforcing a wage limit in all contracts with the friendly societies, and fixing a limit of £204 per annum. At a general meeting of the members of the New South Wales Branch of the British Medical Association held on December 29th, 1908, the following resolutions were passed:

That the wage limit, as adopted by the Australasian Medical Congress and accepted by the delegates of the lodges of the Friendly Societies' Association in conference with the Council of the New South Wales Branch of the British Medical Association on December 31st, 1906, and February 28th, 1907, be enforced in the metropolitan area from January 1st, 1909.

That the members of the Branch pledge themselves to support all members who determine to enforce the model lodge agreement adopted by the Branch on May 10th, 1907.

This attitude on the part of the lodge doctors has aroused a good deal of opposition on the part of the lodges, and at a meeting of the delegates of the Friendly Societies' Association some strong language was used as to what should be done to bring the British Medical Association to its proper senses! Dr. Abbott, in his address, reviewed the position of affairs at present, and urged upon all the members the necessity of standing firm in their demands, as there was no doubt that in the end they would secure the recognition of the wage limit.

Another matter to which Dr. Abbott referred was the proposal to acquire a site in the centre of the city, and to erect on it a building for the Branch. It has long been felt that this step is necessary in the interest of the members of the Branch, as at present it has no building of its own suitable for a meeting hall, library, reading room, etc. The proposal has been taken up rather enthusiastically, though it is recognized that a large sum of money will be required to do all that is suggested. A site is now under offer to the Branch for £11,000, and it is estimated that another £11,500 will be required for the erection of the building. There is every reason, however, to hope that by the time the next congress meets in Sydney in 1911, the New South Wales Branch will have a building worthy of the Branch and of the Mother City of Australia.

At the same meeting Dr. Richard Arthur, M.L.A., of Sydney, was elected as the Representative of the Branch at the Annual Representative Meeting in Belfast next July, and Drs. Odillo Maher and Watson Munro were elected as delegates to the Annual Meeting of the parent Association. Dr. H. C. Hinder was elected President, and Dr. J. A. Dick, Vice-President of the Branch for the ensuing year. The Treasurer, Dr. W. H. Crago, presented his statements of the accounts of the Branch and of the *Australasian Medical Gazette*, which showed a very favourable financial position.

THE FRIENDLY SOCIETIES.

Some idea of the extent of the operations of these societies in this State may be gathered from the annual report of the Friendly Societies' Association, which was presented at a meeting of the association held recently. At the end of the year 1907 the membership of the friendly societies was 116,985, an increase of 10,307 on that at the end of the previous year. The number of societies was reduced to sixteen, owing to the absorption of the old Protestant Alliance by the United Ancient Order of Druids. There were 1,350 lodges and 116,985 members. The receipts were £434,000, making the amount of funds £1,171,343. The amount of sick pay was £96,239; the funeral benefits £24,336; and the medical benefits, £110,894. The average value of the funds per member was £9 10s. 8d. From these figures it is apparent that these societies made a profit on the year's transactions of £202,530, which proves conclusively that they could afford to pay their medical officers a considerable increase on the present rates and still make a handsome profit. But the lodge member who cries out loudly about the sweating of the labourer by the master dearly loves to sweat his medical officer.

PRECAUTIONS AGAINST PULMONARY TUBERCULOSIS.

It has long been recognized that the Blue Mountains in this State afford an excellent climate for persons suffering from pulmonary tuberculosis, and large numbers of patients resort thither every year. The Shire Council at its last meeting had under consideration a report from the clerk, in which it was pointed out that each year there seemed to be a greater influx of patients suffering from pulmonary consumption to the mountains, and as legislation to make this disease notifiable seemed as far off as ever, it was suggested that it should be dealt with under Section 6 of the Local Government Act. It was further stated that the present careless practices are causing great harm to this great Blue Mountain health resort. It was suggested that all property owners, agents, and others who were in the habit of letting cottages should be compelled to supply a list of such premises to the Shire Council for the purpose of inspection. Premises vacated, it was stated, should be properly fumigated. Eventually the council passed a resolution to the effect that consumption should be declared a notifiable disease, and that the Government be requested to take prompt steps to deal with the matter. A letter embodying this resolution has been sent to the Premier and to the member of Parliament for the district.

The Federal Minister of Home Affairs has approved of an official suggestion that all candidates for appointment in the Federal Public Service should in future be compelled to undergo examination by a Government medical officer. This action has been taken because of the number of medical certificates being sent in by Civil servants alleged to be ill. An inquiry has been made, and in one branch alone—the Melbourne Telephone Exchange—some extraordinary cases of prolonged sick leave were found.

The inquiry was limited to permanent officers of less than five years' standing. Several of these cases were found to be suffering from tuberculous disease, and it was pointed out that such persons rendered comparatively inefficient service, while the danger of contamination of the other officials was great. As it is not considered desirable that these persons should be in the service, the Minister has approved of the suggestion referred to.

THE BUBONIC PLAGUE.

Once again Sydney has been visited by an outbreak of the bubonic plague. Early this year some plague-infected rats were discovered on one of the wharves which has been the site of infection in previous outbreaks, and the Board of Health and the city health officials were alert, in view of the probable occurrence of cases of the disease in human beings. Some two or three weeks ago a case was reported from a flour mill in the city, and four other cases followed rather rapidly. The mill was inspected. It was badly infested with rats, and over two hundred dead rats were found under the flooring. Following on this discovery the Lord Mayor promptly suspended two of the city sanitary inspectors for neglect of duty, and proceedings were taken against the owners of the mill. Unfortunately two of the proprietors were infected with the disease, and both died from it. Two other cases were discovered on a steamer which arrived from the New Hebrides, and one of these patients has died. Towards the end of March two other cases were reported from amongst the employees of the City Mills in Sussex Street, in close proximity to one of the rat-infected wharves. These premises are reported to be structurally sound, but plague-infected rats have been discovered on the premises next door; and, as the business involves the handling of produce, it is supposed that infection has been conveyed in this.

Federal Quarantine Service.

A conference of the States Health Officials was held recently in Melbourne to discuss and report upon the details of administration of the new Federal Quarantine Act. A report was furnished to the Cabinet, and acting upon that the Cabinet has decided to call for offers from gentlemen who may be prepared to act as Director of Quarantine. The salary has been fixed at £1,000 a year, but it has not yet been decided whether the post shall be filled by a medical man or a layman, and it is said that this point will not be settled till the applications are before the Cabinet.

Scotland.

[From our Special Correspondent.]

Death of Principal Marshall Lang of Aberdeen.

The announcement of the death, at the age of 75, of the Rev. John Marshall Lang, D.D., C.V.O., Vice-Chancellor and Principal of Aberdeen University, will be received with much regret. He had been ill for about three months, and after a temporary rally grew rapidly worse and died on the evening of May 2nd. The cause of death was anaemia of toxic origin. Previous to his appointment to the Principalship of Aberdeen University Dr. Lang held a leading position in the Church of Scotland, not only as the minister of one of the chief churches—the Barony Church, Glasgow, where he succeeded Norman Macleod—but also as an ex-Moderator of General Assembly and a great leader and debater in the Church courts. His appointment in 1900 to Aberdeen University by Lord Balfour of Burleigh, who was then Scottish Secretary, was the subject of much criticism at the time, and was received with considerable misgivings, not only in academic circles but by the general public. Affairs in Aberdeen University were not going in the smoothest way in 1900. The great extension scheme, when only half completed for want of funds, had practically come to a standstill, and there was a grave division of opinion as to the future of Greyfriars Church. These and other matters may have led Lord Balfour to introduce as head of the university one from outside its walls. However, it was not the appointment of an outside man that gave rise to the misgiving, but rather the doubt as to whether one who had up to the time of his appointment as Principal spent the whole of an already long life in the ministry of the Church, and who had never held a university office, would justify his selection at a time when the university affairs were in a notoriously troubled condition. Time proved, however, that the appointment was a wise one. In spite of a very hostile reception by the students on the occasion of his inaugural address, and at several graduation ceremonies thereafter, he ultimately gained for himself their sympathy and affection, for as time went on they realized the character of the man and his anxiety to promote their interests, so that in recent years even the rowdy enthusiasm of graduation day did not prevent respectful attention to his address as Vice-Chancellor at the close of the capping ceremony.

In regard to his position as head of the Senate, it has been stated that he was probably never quite at ease in the technical and complex work of university teaching under modern conditions, but that the Senate never enjoyed the services of a more helpful and conciliatory chairman, one who never failed to exhibit those qualities of impartiality, courtesy, tact, and knowledge of methods of debate which conduce so largely to fair and orderly discussion and to proper decision. In the work of the University Court Principal Lang had an opportunity of displaying his administrative capacity. He found the extension scheme languishing for want of funds, with a debt of over £20,000 on the extension already completed, and the Court stood committed to complete the extension by enclosing the front of the Marischal College buildings. How successfully the Principal devoted himself to the completion of the scheme is matter of recent history, fully demonstrated at the celebrations in 1906, in which he occupied a central position with striking dignity. Few who heard his address of welcome to the delegates from other universities and learned societies will ever forget his great oratorical effort worthy of that unique occasion. Probably no Principal has enjoyed more popularity with the general community. Much of the ultimate success of the extension scheme was due to the way in which he enlisted the sympathy and services of the Lord Provost and town council and other corporate bodies in the interest of the university. He had not been long in Aberdeen before he gave ample evidence of his determination to be a working Principal of the university. His services were available for every scheme of social and religious organization and educational advancement. He responded to every call, and gave his services gladly. He enjoyed the social intercourses of life, and his after-dinner speeches—as, for instance, in Trinity Hall, of the Incorporated Trades, or in the Medico-Chirurgical Society Hall—were not less happily phrased than his more ceremonial deliverances. In many ways he was a remarkable personality, combining in a singularly attractive character a richness of genial humanity and grave dignity that well befitted the high offices to which he had been called, and all of which he adorned. In his public deliverances he was always appropriate, and few men could more correctly interpret the general feeling in saying the right thing at the right time in diction copious and polished, with fine rhythm and swing. There have been Principals of Aberdeen University more distinguished for scholarship and authorship, but there have been few of more varied culture and more eloquent, or who with more acceptance brought the university into vital connexion with the life of the city. His kindness, intense sympathy, affability and geniality were unfailing, and the whole bearing and quiet dignity of the tall, slightly stooping figure inspired respect. He possessed remarkable tact and capacity for dealing with men, and it was probably this feature of his character that made his principalship the success it has proved to be.

Ireland.

[From our Special Correspondents.]

Post-Graduate Classes, Trinity College, Dublin.

The arrangements for the annual classes for medical post-graduates at Trinity College, Dublin, have been completed. As in 1908, two courses have been organized for this year. The summer course will be held in June, and the autumn course will be given in the later part of September and the first week of October. A new feature in the syllabus for 1909 is the announcement of the delivery of a special lecture on cancer of the rectum by Sir Chas. Ball, Regius Professor of Surgery. Instruction is given in medicine, surgery, gynaecology, diseases of the eye, ear, throat and nose, in *x*-ray work, and in cystoscopy. Classes of a practical nature are also to be held in physiology, pathology, and anatomy.

One of the attractive features of the courses in past years is still retained. Members of the class may obtain rooms in college and dine on commons at an inclusive cost of £1 1s. a week. As the number of rooms available is limited early application is desirable. Additional details can be found in our advertising columns, or the complete syllabus can be had on application to the Honorary Secretary of the Post-Graduate Classes.

Church Tuberculosis Class in Belfast.

A tuberculosis class has been formed in connexion with Elmwood Presbyterian Church, Belfast. A room has been rented in the mission district, where the class meets weekly. The membership is limited to six, as the work is experimental. A doctor and the nurse of the Women's National Health Association attend the class, and the nurse visits the patients in their homes. Discipline is maintained, and a member has been dismissed for disobedience to orders. The patients have to keep a record of their case, and help is afforded to the very necessitous. This class is said to be the first of its kind on this side of the Atlantic, but the plan has been tried with success in the United States. Details are given in the April number of *Slainte*, the journal of the Women's National Health Association.

A SAD STORY.

The board of guardians for Ballina received recently from Dr. Laing, the dispensary medical officer, a letter from which we quote the following paragraphs:

Gentlemen,—I beg to acknowledge receipt of a copy of the Local Government Board report on the late inquiry held to investigate charges against me.

* * * * * *

The fact of my trying to cope with the impossible for years did not weigh one atom in my favour. I have worked day and night for the past seventeen or eighteen years till, in the discharge of my duties, I contracted blood poisoning (last July two years). Since that time my health has been indifferent, and again in June last I got sepsis from another patient suffering from diphtheria, which put all hope of my regaining my former sound constitution out of the question. This attack also left me with a useless finger, and left my heart in a condition which absolutely prevents me ever undertaking any duty which would entail much physical or mental fatigue. As a matter of fact, it was against my medical advisers I was working when those reports were made. I had consulted Dr. Swann in August, and he forbade me to do any work for six months; but owing to the attitude of the Board, or on account of the extra expense, I said on October 1st I would take up duty and work till I fell. I knew I was killing myself by doing so, but for the last few months I felt it was no use courting disaster, and in justice to the poor and to myself, I had made up my mind to resign. I now, with the greatest regret, beg to offer you my resignation.

* * * * * *

Then follows perhaps the most pathetic part of Dr. Laing's letter, in which he appeals to the guardians for superannuation, which if granted on the most liberal allowance permitted by the Civil Service scale would only amount to twenty-seven sixtieths of his salary of £120 a year. Fancy a salary of £120 a year for attending to a population of 18,480 persons scattered over an area of 73,811 acres, the dispensary tickets amounting in a recent year to 1,066 and the visiting tickets to 466!

At the inquiry referred to Dr. Laing was charged with neglecting two dispensary patients. The inspector who tried him found him not guilty in one case and guilty in the other, but having carefully read all the evidence as published we do not think any jury of his countrymen would have convicted upon it. Even then he might have escaped with a reprimand, but that he had been guilty admittedly of the more heinous offence of neglecting to write up his dispensary records for some months—records which no one ever looks at except an inspector, who takes a glance at them perhaps once a year.

It was admitted by the guardians examined at the trial that for sixteen or seventeen years no man could have discharged the overwhelming duties of this dispensary better than Dr. Laing, and that only for one year he had neglected them, owing, as he states, to his broken-down health, and he was for that neglect promptly called on to resign.

Dr. Laing complains that the inspector had his mind made up before he opened the inquiry. We should be sorry to think such was the case, but such suspicions are inevitable when the Local Government Board imposes upon the inspector in charge of a district the duties of prosecutor, judge, and jury combined. It would make no difference to the Local Government Board, and would certainly conduce to public belief in its impartiality if such inquiries, which in many cases would be more appropriately styled criminal trials, having regard to the punishments inflicted, were held by an official on its staff with some legal training and unconnected with the district, leaving to the inspector of the district the sole duty of collecting and presenting the evidence for the prosecution. Owing to the great increase in the number of these inquiry trials since the passing of the Act of 1898, public attention has been more directed to them, and the dissatisfaction with the slipshod methods in which many of them are conducted more frequently expressed. At the end of its report to the guardians the Local Government Board says:

If the guardians are satisfied by medical testimony that Dr. Laing is physically incapable permanently of the effective discharge of his duty, the Board would not regard the decision now arrived at by them as a bar to the granting of a superannuation allowance to him.

From the promptitude with which the guardians accepted Dr. Laing's resignation, and the fact that Ballina Union is next door to Castlerea, we feel rather doubtful of Dr. Laing's chances, but hope for the best.

There is one thing this inquiry has brought to light, and that is the shocking injustice of expecting any man to discharge such duties on such a salary. If an Act of Parliament is needed to prevent English employers from sweating their employees, it ought in justice to be extended to the Irish Local Government Board and to Irish boards of guardians, who are—— our Irish readers can supply the hiatus.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

LIVERPOOL.

PRESENTATION TO THE MEDICAL OFFICER OF HEALTH.

ON April 30th a meeting of the sanitary staff of the city was held in the Municipal Offices to do honour to the medical officer of health (Dr. E. W. Hope) on the occasion of his completing twenty-five years' service in Liverpool. Dr. A. A. Mussen, the assistant medical officer of health, who presided, presented Dr. Hope with an illuminated address and an antique silver tankard, and spoke of his distinguished services and the zeal which he showed for the highest interests of the staff. Not only were Dr. Hope's annual reports among the best of their kind, so that his position as an authority on public health was almost unique, but his evidence on sanitary matters was sought in the law courts and before Royal Commissions and Departmental Committees, while he was often consulted by Government officials. The prestige of his staff was now at the highest, and Dr. Hope was a chief who always gave credit to those who worked well for him.

Dr. Hope said that, while accepting the beautiful gift, it was difficult to realize that he was in his twenty-sixth year of service, while seeing present faces which had been around him all those years, and which were still so little changed. The most important duty of his early years as medical officer of health was to certify patients suffering from typhus fever. Within the first six months he certified more than a thousand such patients, but to-day typhus fever was looked upon as a rare disease, and as pointing to something which ought not to exist. Twenty-five years ago the city had no municipal hospital, and he had to depend on the good offices of the boards of guardians. Even when a city infectious hospital was opened in Grafton Street it was sometimes so difficult to induce a patient to go there that a magistrate's order had to be obtained and the patient compelled to enter the hospital. Nowadays, if the patient was not promptly taken to hospital, the relatives and friends wanted quickly to know the reason why. Twenty-five years ago there was no system of notification of infectious diseases, and his staff was only about a dozen. Since then, however, a series of Acts of Parliament, some originated by the Liverpool Corporation, had been put into operation, with a consequent increase of the health office staff, while the central growth and extension of the city from 450,000 to over 750,000 had been accompanied by an automatic multiplication of inspectors. The sanitary work of the port, through which as many as 400,000 emigrants passed in a single year, and the enormous importation of foodstuffs had led to increased work for inspectors, while the task of caring for the health of the children in the schools was only just beginning, and the notification of births would lead to still more duties being cast upon the health officer. What was there to show for all this sanitary zeal? The answer was that unhealthful conditions had been swept away which, if present to-day, would shock the public eye; so that on the negative side there was much to be credited to sanitation which was invisible. There was, however, one great fact to be proud of and to be seen—the remarkably improved health of Liverpool. It was by one continuous, united, concerted effort that improvement in the health of the city had been effected. The improvement had taken place not only in the old parish and parliamentary borough of Liverpool, but also in all the districts which had been absorbed in the municipal area. The Town Planning Act, which by the provision of wide streets and open spaces was to prevent a repetition of the errors of

the past, would result in a further great development of sanitation. Moreover, people were increasingly willing to listen to advice concerning their health and that of their homes, and he was glad to say the poor people were as amenable and as willing and as anxious to do what they could for themselves, in a sanitary sense, as any other class. In short, sanitary science had reached a stage after which the city and the nation would advance at an accelerated rate.

MANCHESTER AND DISTRICT.

THE REORGANIZATION OF POOR LAW MEDICAL RELIEF.

WHATEVER may be the ultimate outcome of the Poor Law Commission Report, there can be no doubt that boards of guardians throughout Lancashire and Cheshire have been roused by it to a remarkable degree. The more advanced and enlightened boards have been at some trouble to prove that they have already adopted many of the suggestions of the Commission, especially in discriminating and separating various classes of paupers, while even the less up-to-date boards are protesting as to what they will do as soon as possible. The Chorlton Board, however, has attempted to outbid the Commission itself by a resolution passed at its fortnightly meeting on April 30th. Armed with a resolution in his favour from the Medical Guild, Dr. Garrett, one of the board, proposed that the clerk be instructed to make representations to the Local Government Board that any person needing medical relief or free vaccination should be at liberty to select his own doctor, and that the fees should be paid according to a fixed scale by the guardians. Dr. Garrett said that it was a distinct hardship that poor people should be compelled, when they need medical relief, to go to the district medical officer, and it was specially objectionable in maternity cases. In addition, he thought it was unfair to general practitioners that they should be precluded from a share in the work. Such work ought not to be in the hands of a few members of the profession. The proposal was supported by Mrs. Lawson, a trained nurse and a member of the board, who said that the poor women viewed with horror the idea of having a strange doctor at their confinement. The resolution was passed unanimously, and it was further resolved to send it to all the local members of Parliament, the Poor Law Unions Association, and to all boards of guardians in the kingdom. The effect of this resolution would, of course, be to abolish the district medical officers, which, as the Majority Report suggests, would ultimately happen if the Majority scheme of medical relief on a provident basis were adopted. But the commission hardly goes so far as the Chorlton proposal, for in the Majority Report choice of doctor is not suggested for all paupers but only for those persons who have joined a provident dispensary. For the present, at any rate, non-members of a provident dispensary would presumably be limited to the district medical officers. Dr. Garrett's idea is that the difficulty under his proposal of having to compensate the district medical officers would be got over gradually by simply not appointing others when vacancies occur.

TREATMENT OF PHTHISIS UNDER THE POOR LAW.

At a Poor Law Conference of the North-Western District, held in Manchester on April 20th, at which about a hundred guardians were present, the report of a subcommittee on the treatment of phthisis was unanimously adopted. The report suggested that every effort should be made to form combinations of unions for providing sanatoriums, as was possible with the consent of the Local Government Board under the existing law. With regard to the outdoor poor it was suggested:

(*a*) That attempts should be made to secure active co-operation between the health authorities and the guardians in dealing with phthisical cases among the outdoor poor.

(*b*) That the guardians could do something to lessen existing evils by making additional grants of outdoor relief to phthisical patients conditional on such patients having separate sleeping accommodation.

(*c*) That leaflets containing instructions as to precautions to be taken, such as exercise, rest and ventilation, and advice as to the use of the most nutritious cheap foods, might be distributed by the relieving officers.

(*d*) That as the chief danger arises from the sputum, it might be lessened by the provision of pocket spittoons, paper handkerchiefs, and disinfectants.

(*e*) That hopeful cases should, where practicable, be sent to sanatoriums.

(*f*) That the guardians should provide their medical officers with facilities for obtaining, free of cost, bacteriological examination of sputum in suspected cases.

(*g*) That nurses with special knowledge of the treatment of phthisis should be provided periodically to visit and advise the consumptive poor.

As regards the indoor poor, it is suggested that special care should be taken to isolate all cases of phthisis, no consumptive patients being allowed in the general wards of the workhouse hospital, but that special wards with plenty of fresh air should be provided. In the smaller unions shelter-tents and temporary buildings might be erected in the workhouse grounds, while in the larger unions there should be special buildings of a more permanent character.

WALES.

THE EBBW VALE DISPUTE.

THE latest phase of the Ebbw Vale dispute may be gathered from the following paragraph, which we take from the *South Wales Daily News* of April 29th:

The first ballot on the Ebbw Vale doctor's fund question having failed to settle the vexatious controversy, a second ballot was taken, and the result was announced on Wednesday (April 28th). On the former occasion the ballot paper, it was contended, did not clearly state the issue. The result of this second ballot was: Against the reinstatement of Dr. O'Sullivan, 3,207; for reinstatement, 2,690; majority against, 517. The Cwm members of the fund, however, declined to fall in with the suggestion to take a second vote, and, it is said, will not abide by the result. Therefore, the protracted dispute promises to continue unless a mass meeting to be held in a few days comes to a decision.

WEST YORKSHIRE.

THE HYGIENE OF TRAMCARS.

IN fulfilment of a promise made by the Chairman of the Bradford Health Commiteee, Dr. Evans, M.O.H., has recently issued a report on the cleanliness and ventilation of the tramcars. Each car is washed at night with cold water and with soap and water once a month, and disinfected at regular intervals. The cars, however, are frequently overcrowded, but Dr. Evans does not consider this a fertile source of infection. The ventilating arrangements of some of the most recently constructed cars cannot be tampered with by the passengers, and this method will probably be adopted in future. Complaints are made that workmen in dirty clothing use the cars, and it is suggested that the Bradford Health Committee might urge the employers of labour to provide their workpeople with facilities for washing before leaving work. Complaint is also made that no effort appears to have been made to lessen the noise created by tramcars. In Bradford the tramcars, which run until after midnight and start again at 4.30 a.m., are a constant source of insomnia and nervous troubles. Why should not a concerted effort be made to try and run silent cars? Why not call together a conference of leading experts—engineers, electricians, tramway managers, and medical men—to consider means for lessening noise? In inviting tenders for the manufacture of tramcars, the silence of the running of the car might be made an important point. There is little doubt that this question of noisy streets is one of the problems of the future, but with foresight and energy it might before many years are over become almost a thing of the past.

COUNTY OF DURHAM.

WOLSINGHAM SANATORIUM FOR WOMEN.

ON May 1st the new Sanatorium for Women belonging to the Society for the Prevention and Cure of Consumption in the County of Durham was opened by Lord Barnard, the President of the Society, before a numerous company of the friends of the movement, amongst whom were representatives of local authorities and representative workmen of many miners' lodges, works, etc. Lord Barnard referred with gratification to the good work done at the sanatorium at Stanhope, and thought that the cult of the open window was beginning to spread to the masses. He stated also that at a meeting of a similar society at

Shrewsbury a little while ago the work and methods of the Durham Society had been most favourably referred to. The Rev. Dr. Randell, Rector of Sunderland, then offered a dedicatory prayer, and invoked a Divine blessing on the sanatorium. Dr. Robinson of Sunderland, the Chairman of the General Committee, gave a short account of the work of the society and of the Stanhope Sanatorium; already 1,100 people had been treated in it, and of these many hundreds had been restored to the ranks of workers. The society now had accommodation for 73 patients. He referred to the work of the sanatoriums as being a part of a wide and general programme to eradicate the disease from the county. He asked for assistance from the local authorities to establish, equip, and maintain a third sanatorium in which the advanced cases might be received, as from the point of view of the public health these cases were the most dangerous to the community. He concluded by stating that no risk was caused to the neighbourhood by a consumption sanatorium. During the nine years that the sanatorium had been at Stanhope, not a single instance had occurred of any of the staff having been attacked by the disease, but, on the contrary, they had all looked rosy and well. Neither had the death-rate from consumption increased in the district, and, as a matter of fact, last year there had only been one death from consumption in the Stanhope Urban District (population 2,006), and that occurred in a patient over 70 years of age. After a short speech from Dr. Mostyn, M.O.H. South Shields, a vote of thanks was moved to the Rev. Dr. Randell by Councillor Arthur Ritson, Chairman of the Sunderland Health Committee. Councillor Elliot of Gateshead moved a vote of thanks to Lord Barnard.

Correspondence.

COAGULATION TIME OF THE BLOOD.

SIR,—In your issue of April 24th, I am pleased to see that Dr. T. Addis, in his article on the "Clinical Methods of Determining the Coagulation Time of the Blood," quotes my method as being one of the most accurate. I regret, however, that he omits to say that the principle of McGowan's method, which he uses, is not only directly derived from, but the method itself is only a variation of the one which I described several years before McGowan published his. I first published the principle in a paper read at the congress at Lille in 1899. I further gave a demonstration of it at the International Congress of Medicine at Paris in 1900, in the presence of Sir A. E. Wright, who also showed his coagulometer. This method shortly is as follows:

The ear or finger is pricked, and the second drop of blood obtained is introduced into a tube 5 cm. long, and having an internal diameter of 1 mm., so that the column of blood occupies about 1 cm. of the middle of the tube. Two other similar tubes are filled with the third and fourth drops. These tubes are then placed in a glass box divided into two parts by a glass partition, in close proximity to the fine bulb of a special thermometer. This is graduated in tenths of a degree, and the temperature, 18.5° C, is marked by a red line. Contrary to what Dr. Addis says, it is not very difficult to supervise the box, and, by slightly warming or cooling, to keep it at a constant temperature, or with a variation of a few tenths of a degree.

The second and third tubes (containing the third and fourth drops), in which coagulation takes place in a slightly shorter time, serve to give warning of the approach of coagulation in the first tube (containing the second drop of blood), which it is then only necessary to examine every half minute in order to observe with ease the commencement of coagulation.

The coagulation time is indicated (1) by a tendency to adhesion of the column of blood to the walls of the tube. This indicates that coagulation is about to begin. (2) By the fine filament of fibrin, which is seen in the middle of the column of blood, when the tube is broken at the level of file mark made *previous* to the commencement of the experiment. It is also easy, if desired, by using the drops from a new puncture, to obtain an average coagulation time.

My method, therefore, is simple, does not require any expensive apparatus, and is exact, because the column of blood is kept in close proximity to a sensitive thermometer beneath the eyes of the observer, who can easily maintain a temperature of 18 5° C.

Since 1900 I have perfected this method[1] (1) by calibrating more exactly the tubes. The contents of tubes with an internal diameter of 1 mm. are brought to the same temperature as that of the receptacle with greater ease than when longer and larger tubes, such as Dr. Addis's, are used. Moreover, it would be exceedingly bold of any one to pretend that any of the methods used are absolute, since the blood is withdrawn at the temperature of the patient, who may be febrile, and comes into equilibrium with the external temperature with more or less ease, according to its physical properties. (2) By suggesting the use of short columns of blood in order to avoid the error caused by the unequal repartition of the fibrin in long tubes. (3) By making the method more sensitive by the use of the tubes which serve as indicators.

I have written this letter because the method which I have just described in brief has been borrowed by Drs. McGowan[2] and Addis, who have been satisfied with making a variation which is not only more complicated but more expensive, without even referring to my last work on this subject.

With apologies for transgressing at such length on the space of your columns,—I am, etc.,

SABRAZÈS,
Professeur Agrégé, Médecin des Hôpitaux de Bordeaux.

Bordeaux, April 28th.

SIR,—I think Dr. Mercier must be mistaken in his interpretation of the figures I gave in the paper on the relation between the administration of calcium and the coagulation time of the blood. I am unable to understand how he calculated that there was a "difference of 33 per cent. in coagulation time among 150 trials on different days."

What I said was that in 50 consecutive daily observations on the same person there was an average variation of 34 sec. from the mean, which was 9 min. 50 sec., and that the longest time was 11 min. 41 sec. and the shortest 8 min. 45 sec.

Again, he says "the normal margin of error is so wide, even on his own showing by his own method, that one would expect a wider variation in his results, which are quite remarkably uniform." But my results are not, unfortunately, so very uniform, and there is not much difference between the average variation from the mean in each case and the average variation of 34 sec. in the series of observations undertaken to determine the amount of experimental error. I have taken the trouble to work them out, and I find that they are 30, 25, 36, 26, 16, 26, 33, and 23 sec. That gives a total average variation of 27 sec.

I have constantly found that the blood which first leaves the wound is the last to coagulate. The reason, no doubt, is that fibrin ferment quickly forms and collects round the lips of the wound, and tends to shorten the coagulation time of the blood which follows. The results which are given were taken at all times of the day, and without any reference to meals, because when using another method more accurate than this modification of McGowan's, but inapplicable to clinical work, I found no difference between the coagulation time before or after breakfast, and the fact that the coagulation time is the same at all times of the day shows that food has no effect.[3]

Dr. Golla, working a modification of Buckmaster's method, has also come to the conclusion that the administration of calcium and citric acid has no effect on the coagulation time; so it seems to me that some other explanation must be given to account for the influence of calcium on certain cases of albuminuria, urticaria, chilblains, etc. There is a great deal of clinical evidence which goes to show that in many cases of such conditions the giving of calcium is followed by improvement. Netter[4] has suggested that they may be due to a disturbance of the normal equilibrium between the amounts of the different inorganic salts in the tissues,

[1] *Folia Haematologica*, 1904, i, pp. 394–6; ibid., 1906, iii, Nos. 7 and 8.
[2] BRITISH MEDICAL JOURNAL, November 30th, 1907, p. 1580.
[3] *Quart. Journ. of Exper. Physiol.*, November, 1908.
[4] *Compt. Rend. Soc. de Biol.*, 1907, p. 462.

but no work has yet been done which either supports or disproves this hypothesis.—I am, etc.,

Berlin, May 3rd. T. ADDIS.

UNSATISFACTORY PRIMARY SCHOOLS IN IRELAND.

SIR,—For several years past the reports of the Commissioners of National Education in Ireland have shown that many of the primary schools of Ireland are in a most insanitary condition. Overcrowding, bad ventilation, neglect of school cleaning, absence of proper closets, were most commonly met with. In Belfast Mr. P. J. Kelly, a senior inspector of the Board of Education, reporting on the schools of Belfast, recently stated:

In Belfast much remains to be done, allowing 10 square feet per pupil the accommodation is insufficient in about 27.7 per cent. of the city schools, in 24 per cent. it is fair, and in 48.3 per cent. it is ample. One school, for example, has floor space for 232, but I found 331 pupils present. In another school there is accommodation for 118, while the average attendance is 160. In a third school the corresponding figures are 187 and 236.8. But even in schools where the floor space is adequate, the class rooms are often greatly overcrowded. In one school there was only accommodation for 18, while 39 children were in attendance; there was only one window. In another where the accomodation was for 12 only, and there were 36 present. There was only one window again, and this could only be opened from the top. In 8 cases the ventilation of the schools was poor; in 2 cases it was bad, and in the remaining cases it was fair. In one school the children were crammed into the class room for singing, several of them being squatted on the floor. As things ordinarily go, sanitation in some of the Belfast schools is a matter upon which the general public is quite indifferent, but when anything like an epidemic creates a panic the general public disturbs itself.

One of Mr. Kelly's assistant inspectors, Mr. Mangan, reports:

There was an outbreak of spotted fever in 1907; the scourge affected many of the citizens, and the public health authorities of the Belfast City Corporation became actively interested in the sanitary condition of the schools. Floors were scrubbed, outoffices were carefully looked after, and the general question of sanitation was treated more seriously and systematically than before.

Had there been no epidemic, the sanitary condition of the schools above stated would have been completely ignored. Dr. Starkie, Resident Commissioner of National Education in Ireland, on September 30th, 1905, on the occasion of the opening of the O'Neill Memorial National School, Crossnacreevy, Castlereagh, co. Down, in approving of the plans of the school, said that they represented a degree of excellence in school architecture rarely attained in Ireland, and pointed out how great the necessity is for that excellence to be imitated.

Irish schools, he stated, are, as a rule, very defective in plan when compared with the English and Scotch schools, and one of the many causes hampering the advancement of education in Ireland is undoubtedly the unsatisfactory condition under which Irish teachers are compelled to do their work. Of course, there is in some measure a very good reason for Irish schools being behind those in England and Scotland—there are no rates to provide buildings; but that does not justify, let alone excuse, the state of affairs that prevails. Speaking generally, all over Ireland the character of the primary school accommodation is a hindrance to education. There are great exceptions, here and there. We have a few even in Belfast among the later erected schools. But it may be a source of surprise to some among us to learn that in this matter our city is under special reproach. The great city of Belfast is signally deficient in this respect, to judge from inspectors' reports, and from my own observation there is no city in the three kingdoms where school accommodation is so open to adverse criticism.

From personal knowledge, I can bear testimony the schools in co. Down are in a state very similar to that above described with reference to the schools in Belfast. The estimates for public education in Ireland during the ensuing financial year are £1,621,921, being a net increase of £77,103, of which amount £74,548 goes to national schools. I consider this amount totally inadequate, and strongly recommend the Government to grant, out of the surplus funds obtained by this year's Budget, sufficient means by which the primary education of Irish children may be placed on an equal footing with the children of our English and Scottish people.—I am, etc.,

HENRY O'NEILL, M.D., J.P.,
Manager, O'Neill Memorial National School, Crossnacreevy, co. Down.

Belfast, May 5th.

THE DEATHS REGISTRATION AND BURIALS BILL, 1909.

SIR,—It is earnestly to be hoped that this long-required measure will be allowed to pass the present Session of Parliament, and that the British Medical Association and other interested bodies will do all they can to secure that end.

I have carefully perused the Bill, which I think is excellent, although there are two or three points on which it appears to me to be hardly complete or definite enough—namely:

1. In Section 3, in return for the fee to be paid to the medical practitioner, which I heartily approve, he should be required to give a complete and accurate certification of the cause of death, whether that cause be acute or chronic alcoholism, venereal disease, or whatever it may be. At present the certification and statistics of such causes of death as the last mentioned are most incomplete, because medical practitioners do not like to divulge such confidential secrets to the relatives of the deceased; hence the great desirability also of another amendment—namely:
2. In Section 11 it should be compulsory that the medical practitioner's certificate of the cause of death should be sent under sealed cover direct to the subregistrar. There should also be one compulsory form of medical certificate for the purposes of registration, and one only.
3. Burials should take place only in public cemeteries or churchyards, otherwise there is nothing to prevent stillbirths being secretly buried in private gardens, etc.

Has the Committee of the British Medical Association considered this bill, and are they going to support it? If so, have they sent intimation of their support to the promoters of the bill, which include Sir Walter Foster, M.P.? Organized effort is urgently called for.—I am, etc.,

EDMUND M. SMITH, M.D., D.P.H.,
York, May 4th. Medical Officer of Health.

HOME CONDITIONS AND EYESIGHT.

SIR,—Common experience and popular belief would lead one to expect that bad eyesight would be associated with bad homes. In their statistical study of the question, however, Miss Barrington and Professor Pearson find[1]

no evidence whatever that overcrowded, poverty-stricken homes, or physically ill-conditioned, or immoral parentages are *markedly* detrimental to the children's eyesight.

Indeed (p. 55):

Normal vision is on the whole *slightly* associated with overcrowding, bad economic conditions, and morally defective parentage.

Is it not probable that the explanation of this paradox lies in the following two causes?—

1. Blind children are not included in the statistics. It is known that nearly one-half of the cases of blind children in the blind schools are due to neglect shortly after birth (vide Dr. Kerr's evidence before the Royal Commission on Physical Deterioration).
2. The explanation suggested by Barrington and Pearson (p. 55), but not sufficiently emphasized by them, in that they say, "Can it be that these bad home conditions keep the children in the streets, and so relatively away from the bad environment and in relatively fresher air?"

In North London the better class of parents in a poor district do not allow their children to play in the streets, but keep them much indoors, which is bad for the health in general and probably for the eyesight in particular. They prefer that their children should have good character rather than good health. The worse class let the children do more what they please. If the same customs prevail in Edinburgh we may have in them an explanation of how it is that homes of the better class, morally and economically, were found by Barrington and Pearson from Edinburgh statistics to correspond slightly to the worse environment for eyesight.—I am, etc.,

Hampton Wick, W., May 3rd. L. F. RICHARDSON.

THE LONDON COUNTY COUNCIL AND THE EXPLOITATION OF THE PROFESSION.

SIR,—The action of the London County Council demands instant attention and decisive action if the profession in London is not to be exploited still more, and in a way peculiarly detrimental to its general interests.

The Council at its last meeting passed an amendment, moved by Mr. Hayes Fisher, referring back a report on

[1] *Eugenics Laboratory Memoirs*, v, p. 80.

the treatment of school children, with instructions to prepare an estimate of the cost of treating each of several diseases. The matter is thus left as follows: The Council has decided to treat the children by utilizing existing institutions and by making grants in return from the public funds. The latter, by the way, is in direct opposition to the almost unanimous opinion of the British Medical Association.

Following on the passage of this amendment, the authorities, permanent and other, of the Education Committee have approached the chairmen and secretaries of the London hospitals with proposals, and an informal meeting has been held at which a definite proposition was made, offering the hospitals 4s. 6d. a head for treatment. The response to this offer has, I understand, been of a varied nature, some agreeing to a definite remuneration per head, and others saying that if the Council subscribes special facilities shall be given.

In no case does it appear that anything has been said to the staff, or that they have been considered in the slightest degree.

As far as I can ascertain, they are in more or less complete ignorance of the matter. It seems to be taken for granted that the medical staffs will carry out any scheme that may be proposed by the committees and adopted by the boards of management. In fact, it was bluntly stated the other day: "The staffs are the servants of the boards of management, and if the boards say they must treat the children they must do so." Personally, I think it unlikely that the staffs will submit so easily.

In other words, many thousands, probably hundreds of thousands, of children are to be treated, as far as the medical profession is concerned, for nothing. There is no doubt that these children need treatment, but if they cannot afford to pay their own private practitioners, they should either be treated by the Poor Law or by means of special clinics officered by the medical staff of the Education Committee, who no doubt are able and willing to carry out the work in return for adequate remuneration.

Can there be a more flagrant example of exploitation than this proposal to utilize the services of the profession, without payment, to keep down the rates?—I am, etc.,

London, W., May 1st. H. BECKETT-OVERY.

PROFESSIONAL UNION AND THE BRITISH MEDICAL ASSOCIATION.

SIR,—I would like to offer my meed of praise for the valuable assistance rendered by our local British Medical Association. Twice within two years has it enabled me to uphold the dignity of the profession by resisting offers of remuneration inadequate for professional work.

In the first case the cordial support of my professional brethren enabled me to obtain 6d. a head more from a local club, and in the second case an insurance company offered me the position of local examiner—without, strange to say, ever suggesting I should take out a policy, but at the fee of half a guinea only up to a £500 limit. Again the services of the local British Medical Association were requisitioned, and, thanks to its support, the company have now agreed, less a trivial reservation, to pay a guinea fee for examination for any policy issued above £100.

These cases simply show what can be done by a little mutual co-operation.—I am, etc.,

Whitley Bay, May 3rd. F. HORSEMAN.

THE EMMANUEL MOVEMENT IN AMERICA.

SIR,—During a somewhat brief stay in London it has been borne in upon the writer that a certain confusion exists between the principles and aims of the Emmanuel Society, of which Mr. Hickson is the head and chief exponent, and the Emmanuel movement which took its rise about three years ago in Boston, America, under the leadership of the Rev. Dr. Edward Worcester, Rector of the Emmanuel Church, in co-operation with some of the leading neurologists of that city, and which has spread rapidly through all the leading cities of the United States.

It should be clearly understood that the Emmanuel movement in America is not a faith-healing movement, as that phrase is commonly understood. It does not undertake the cure of any and all diseases, but only those of a nervous or functional character. In this specializing of its efforts to alleviate suffering and cure disease it is not limiting the power of God, but attempts the humble task of learning His will as embodied in the ascertained facts known to medical science as the laws of health and disease.

Hence it does not act independently of, but in constant reliance upon and co-operation with, medical men. No case is taken for treatment unless first diagnosed by a competent physician, preferably a neurologist, who recommends it as likely to yield to the psychical and religious methods employed by the clergymen engaged in the work.

With very few exceptions the leading physicians everywhere in America have welcomed this movement, and given it their warmest support. No fees are charged by the clergy, who feel amply rewarded in the larger opportunity for service to their kind, and especially in the reconstruction of moral and spiritual character which the treatment almost invariably effects.—I am, etc.,

ALBERT B. SHIELDS, M.A.Harvard,
Superintendent and Chaplain of St. Luke's Hospital, San Francisco, Cal., U.S.A.

THE BUDGET.

SIR,—Owing to the additional duty of 3s. 9d. per gallon on proof spirit, the price of many medicines is so materially enhanced that, in my opinion, it will, in many instances, be almost impossible for medical practitioners to undertake contract practice for sick clubs unless a proportionate increase—say of 1s. a year—is made in the capitation payments of members.

Rectified spirit has already been advanced 7s. a gallon, ether 1s. 9d. a lb., chloroform 1s. a lb., sal volatile 9d., sweet spirit of nitre 1s., and so on. Your readers are, unfortunately, only too well aware that the margin of profit from attendance on members of many sick clubs is so exceedingly small that it will be impracticable to meet this large increase in the drug bill save by an increased charge for attendance. I venture, therefore, to hope that the matter will be immediately considered by Branches of the British Medical Association and by medical societies generally throughout the country.

I am not, myself, in private practice, nor am I interested in any club.—I am, etc.,

Leicester, May 4th. J. E. O'CONNOR, M.B., D.P.H.

RURAL DISTRICT NURSING ASSOCIATIONS.

SIR,—There is a nurse in this district who is supported under a provident system managed by a committee of ladies (wives of small tradespeople) and presided over by a lady in county society.

No medical man was ever invited to join the committee, or indeed to have any say in the management of the nursing club. We were, however, pestered to subscribe a guinea annually.

One nurse is kept; she is a certified midwife, and also does general nursing, but to all intent and purposes she is a general practitioner. She diagnoses cases and prescribes for them. Her fee for midwifery is 10s. She also poses as a kind of electrical specialist, patients being treated to a series of shocks from a small galvanic battery; for this quackery she charges from 2s. 6d. to 7s. 6d. a week. A vibrator also forms a valuable asset, chronic rheumatic joints being constantly "cured." She also specializes as a masseuse, treating dropsy by her "wonderful manipulations," to quote a patient's words.

As a gynaecologist she is second to none, and has prescribed and introduced a pessary for a patient of mine, a fee of 7s. 6d. being charged for her attendance. At midwifery she is "an expert," and I must be excused for quoting the following case. On a certain occasion she was engaged to attend the wife of a miller, a man in a position well able to afford to pay a fee of 2 guineas for a confinement. She proceeded to give the patient, a primipara, as far as I can ascertain, about half a wineglassful of ext. ergot liq., with the result that the labour was very considerably hurried. The child was born half dead, and the condition of the patient's perineum can only be described as "split" in all directions. She found she could not complete the third stage, so after pulling on the cord, which was torn right out, and getting away as much of the membranes as she could, she left

the case, and four hours afterwards had the audacity to call on me and tell me what had happened; and flatly refused to go back to the case when told to do so by me, saying that she was going out to spend the day with a friend, the lady president of the nursing club. I reported this case to the Supervisor of Midwives in this county. Unfortunately, this gentleman is a great friend of the lady president, and a reprimand only was obtained from the sanitary committee of the county council, the body which deals with such cases. I requested that I might appear before the committee, and place the facts before them; but the whole case was hushed up by the supervisor in a manner which speaks well for his ingenuity.

This practice of giving ergot in the early stages of labour is regularly followed by this nurse, and on several occasions I have been called in to complete the third stage of labour owing to a retained placenta from a semitonically contracted uterus.

I trust that this correspondence may lead to some inquiry into the conduct of the workings of these rural nursing associations, for some drastic legislation is sorely needed.—I am, etc,

April 27th. G. P.

Sir,—The kind, excellent women who would rush to their neighbours to nurse them with tenderness when in labour have indeed been crushed out by these young unmarried nurses who think themselves very clever and important about the use of antiseptics; but how many require the lysol for cleansing themselves rather than the patients? As one who has been at many beds of the sick poor and dying, and witnessed the dirty habits, hardness, unkindness, and flightiness of the nurses, I plead and ask for something to be done by the medical profession to condemn these associations. If only more ladies in the districts would do more acts of charity and interest themselves amongst the sick poor (not by trying to treat the cases for the doctor), but to see that they were cared for in the way of comforts and nourishment which the doctor orders, I feel far more good would be done in this way than all this so-called "nursing," which is not worthy of the name.—I am, etc.,

A Defender of the Medical Profession.

THE INTERMITTENT TREATMENT OF SYPHILIS.

Sir,—I have read with much interest your reply to "Enquirer" as to the treatment of syphilis, at page 1099. It is needless to say that the preference expressed for the 1-grain grey powder pill has given me lively satisfaction, coming as it does at the present juncture when several rivals are in the field. For most of your statements I have of course nothing but warm approval to express, but on one point I may beg to be allowed to put a question, and it is, I believe, a very important one, Why are interrupted courses recommended in preference to continuous ones?

It is suggested to give the constitution "periods of rest." Now I must contend that, with rare exceptions, if the course be well managed, there is not the slightest need for periods of rest. A two years course, begun at the earliest possible date and pursued without any intermission whatever, is, I feel convinced, the safest plan. The farmer is accustomed to give his grazing land intervals of rest by driving his flocks elsewhere for a time. His object is, however, to let the grass have a chance of growing. Do we not, in the treatment of early syphilis, effect much the same end in favour of the spirochaete by periods of "rest from mercury." I can think of no motive for intermitted courses other than the sportsmanlike instinct not to hit a man when he is down, whereas our object clearly should be to kill utterly.—I am, etc.,

London, W.C., May 4th. Jonathan Hutchinson.

RESISTANCE TO PUERPERAL INFECTION.

Sir,—With reference to your leading article in the British Medical Journal of April 24th, commenting on the different views held by some of our leading obstetric physicians on the prevention of puerperal infection, a question I think worth asking is, Why is it that under the most adverse and dirty conditions of both bedclothes and person, some women go through the puerperium with normal temperatures, whereas others not nearly so disadvantageously placed contract virulent sepsis, though all precautions have been taken? Is it not likely to be due to subnormal resisting powers of the individuals attacked? Would we not be likely to succeed in the stamping out of this scourge if we would combine with our efforts of asepsis efforts towards raising the opsonic indices of all our patients during the latter months of gestation, and trying to counteract the debilitating effects of prolonged labours?—I am, etc.,

Manchester, May 2nd. Martin J. Chevers.

THE PATHOLOGY OF INSANITY.

Sir,—In your appreciative article on the Pathology of Insanity (p. 1014 of the British Medical Journal), and also in your leading article entitled "A Mental Hospital for London," you very properly, if I may venture to observe, recognize the credit due to the London County Council for its enlightened interest in the special investigation of insanity—a disablement which more than any other affects the welfare of the community, and which also, in regard to its proximate causation and prevention, still leaves accurate knowledge a desideratum.

It is hardly in accordance with such an appreciative criticism that the founder and originator of the pathological laboratory of the asylums of London should remain unnamed.

It is generally known in this country and acknowledged abroad that no individual occupying high public offices has done so much to encourage the modern study and investigation of mental diseases as Sir William Collins—not only as a medical man and a sanitarian in the best sense, but also as an administrator.

Alarmed by the increasing prevalence of insanity as demonstrated by statistics, sympathetic with the sad fact that the complaint itself precluded the sufferer from accurately complaining, and moved by an appreciation of the complexity and intricacy of the affected tissue, as also of the subtle chemical constitution of the underlying physical structure in cases of insanity, Sir William Collins, from the time he entered the London County Council in 1892, whole-heartedly associated himself with the project of establishing a scientific laboratory fully furnished for original investigation into the causes of insanity.

This laboratory—with its physical research room containing ophthalmoscopic, laryngoscopic, *x*-ray, and other electrical appliances; with its photographic studio containing photomicrographic apparatus; with its histological and pathological department containing a chemical and bacteriological equipment, with its spacious Museum and Library—was the outcome of great labour and careful inquiry. It was based upon information obtained through scientific experts in this country and abroad, special information from the Foreign Office through the various embassies, and from the Home Office through the Lunacy Commissioners being fully considered by Sir William Collins. How well the Director of the Laboratory has used his material is known to the world, and it would be an impertinence for me to refer further to it.

In the earlier days of neuropathology—less than twenty years ago—it was no small triumph to forecast the usefulness and value of this research work. It was no smaller triumph to convince lay colleagues in order to execute the scheme. The results which you have criticized reflect in an especial degree upon the statesmanlike qualities and upon the sympathetic zeal of a mind devoted alike to "alleviate the lot of the poor" and to stimulate "additions to natural knowledge."

If you will read the preface written by Sir William Collins to the first volume of the *Archives of Neurology*, you will, I know, readily admit the claims to public acknowledgement of so highly reputed and distinguished a member of our profession as are those of the founder of the London Asylums Pathological Laboratory.—I am, etc.,

Claybury, April 28th. Robert Jones, M.D., F.R.C.P.

⁂ If Dr. Jones will read the illustrated article, published in the Journal of February 18th, 1899, p. 420, in which we first brought the Pathological Laboratory of the London County Council under the notice of the profession, he will see that special mention was made of the share

taken by Sir William Collins in the foundation of the Laboratory. In our review of the first volume of the *Archives of Neurology*, which appeared in the JOURNAL of November 25th, 1899, p. 1483, reference was made to the fact that Sir William Collins had contributed a preface. Again, in our review of the second volume of the *Archives*, published in the JOURNAL of March 7th, 1903, p. 1555, we quoted from that preface. We have, therefore, already on several occasions done what Dr. Jones rather late in the day calls upon us to do. If the name of Sir William Collins was not mentioned in our review of the latest volume of the *Archives*, or in the leader entitled "A Mental Hospital for London," that was due, not to any wish to ignore the part which he played in establishing the Laboratory at Claybury, but to the fact that we were dealing with the work done at the Laboratory and with Dr. Maudsley's offer to the London County Council, with neither of which, as far as we are aware, was Sir William Collins concerned. The Athenians got tired of hearing Aristides called the Just. We hope that when Dr. Jones writes, "The results which you have criticized reflect in an especial degree upon the statesmanlike qualities and upon the sympathetic zeal of a mind devoted alike," etc., he said one of those things one would like to have expressed differently. We did not criticize the results, but simply tried to set them clearly before our readers. If Dr. Jones thinks that these results "reflect" in any way upon the statesman of whom he has come forward as the champion, that must be regarded as his opinion. It certainly is not ours.

URTICARIA.

SIR,—Heidenhain and others have shown that urticaria is due to poisons affecting the endothelial cells of the capillaries—lymphagogues, he calls them—present in crayfish, mussels, etc. I should like to know what is the correct treatment in such cases. As several people may partake of the same dish and only perhaps one of them develop nettle rash, are we to suppose that an antilymphagogue is present in the blood or tissues of some people? and if so, what is this antilymphagogue? and would it be possible to separate it and use it as an antitoxin?

I had one patient who suffered most severely from nettle rash for some months, and no treatment seemed to mitigate it; there was no history of any poison. Are we to suppose that in her case the endothelial cells underwent some change and did not become normal for some months, or are we to suppose that some poison was retained in the system which continually acted upon the cells? Are we all liable to poisoning by lymphagogues? But, protected by the presence of an antilymphagogue, the product of, say, one of the ductless glands, there are, of course, several "internal secretions" the use of which is not exactly known. May this be one of the uses? The importance of these internal secretions probably cannot be overestimated; it may be that a deficiency in one or other of them may predispose an individual to tuberculosis or even cancer. It is impossible to keep up to date with all that is written on cancer or the like; but it might be worth while for those who are working on the subject and who have the material to study to hand, to ascertain whether the function of any particular organ is found impaired in association with cancer.—I am, etc.,

Leytonstone, April 23rd. ARTHUR TODD-WHITE.

ELECTRICITY IN INFANTILE PARALYSIS.

SIR,—Much has been written of late, both in this JOURNAL and elsewhere, as to the benefits to be derived from surgical measures in old-standing cases of infantile palsy. All who are interested in the subject cannot but welcome any fresh means whereby the ravages of this disease may be, to some extent, repaired. Unfortunately, however, contemporaneously with this advance, there has been a tendency to decry the well-established treatment by electricity in favour of graduated exercises; and this in cases in which the question of surgical treatment does not arise.

No one would be so foolish as to deny the value of medical gymnastics, but their field of application is strictly limited. They are, in common with massage, useful as an adjunct to electrical treatment, but they can never take its place. The reasons are as follows:

(*a*) In many cases voluntary power is non-existent in the affected muscles.

(*b*) Where some control remains, even the mildest exercises not infrequently produce fatigue and aching.

(*c*) Infantile paralysis is primarily a disease of the cells of the anterior cornu and of their efferent nerves. Electric currents, especially those produced by the induction coil, have a specific effect in stimulating partially atrophied nerve centres into fresh activity, an effect which—at least so far as our present knowledge goes—it is impossible to produce by any other agency.

The good effects of faradic treatment on weakly muscles are almost too well known to need emphasizing; but it is true that other means, such as massage, may sometimes produce equal benefit. It must be remembered, however, that the function of the damaged cells is not only motor, but trophic; and it is in the stimulation of this latter power that electricity stands unrivalled. An arm or leg which for years has been blue and cold and shrunken takes on new life; its temperature rises and its colour improves. Nor is this all. In children who have not yet reached their full growth, the development is accelerated, so that the increase of relative shortening is checked, and the diseased limb ceases to lag behind its fellow.

Finally, we do well not to forget that the health of these subjects is usually bad and their vitality low. To treat the paralysis successfully without attending to the patient is scarcely possible; and there is no better means of raising the bodily tone than by general electrization in the form of baths.—I am, etc.,

F. HERNAMAN-JOHNSON, M.B., CH.B.Aberd.,
Bishop Auckland, April 19th. R.N.(ret.)

Universities and Colleges.

UNIVERSITY OF OXFORD.

Diploma in Ophthalmology.

CONGREGATION on May 4th approved a statute for a diploma in ophthalmology.

Examination for the M.Ch. Degree.

The examination for the degree of Master in Surgery will commence in the Medical Department of the Museum at 10 a.m. on Thursday, June 24th. Names must be sent in to the Assistant Registrar at the University Registry not later than 10.30 a.m. on Friday, June 4th. The statutable fee (£5) and the required certificates must be given in at the same time.

Examination for the D.P.H.

The examination for the Diploma in Public Health will commence on Tuesday, November 16th, at the Museum. Both parts may be taken together at the same examination, or they may be taken at separate examinations; but no one will be deemed to have satisfied the examiners in Part II unless he has satisfied the examiners in the subjects of Part I. The fee for each part is £5. Names of candidates and fees must be sent in not later than 10.30 a.m. on Tuesday, October 26th, to the Assistant Registrar, from whom all particulars can be obtained.

UNIVERSITY OF CAMBRIDGE.

Degrees.

THE following degrees were conferred on April 29th:

M.D.—A. W. Wakefield, Trin.; S. Gooding, Joh.; E. E. Glynn, Cla.; W. F. Buckle, Gonv. and Cai.; R. A. Clapham, Emm.
M.B., B.C.—M. W. B. Oliver, Trin.
B.C.—A. C. D. Firth, Trin.

Professor Woodhead has been reappointed Representative of the University on the Council of the Lister Institute of Preventive Medicine.

VICTORIA UNIVERSITY OF MANCHESTER.

The Students' Union.

THE Chancellor (Lord Morley) formally opened the new buildings of the Students' Union on April 30th.

When first the Union began in 1861 it was little more than a debating society, using the college court room, but in 1893 it obtained the old house near the university, which has remained its head quarters until to-day, though for some time it has been much too small to meet the growing needs. The new buildings have cost about £23,000, which has all been raised except about £1,500. The university authorities provided the site and the whole cost of the refectory, and the late Mrs. J. Worthington gave funds for building the women's union. The men's premises have cost over £10,000, most of which has been raised by the students and old members of the university. The men's and women's portions are under the same roof but quite

separate. The buildings are of brick with stone facings, and shields carved with the coats of arms of families connected with the university are seen over doors and windows. Opening out from the entrance hall is a large reading room and some small rooms for various purposes, while a passage leads to the refectory, which will be used in common by men and women students and the teaching staff. A library, and a fine room for the debating society, occupy the first floor, while on the second floor is a billiard room. The women's portion has a drawing room with library and reading room, and small rooms for social purposes.

There was a crowded audience in the large debating-room to hear Lord Morley. Mr. Alfred Haworth, President of the Union, in welcoming Lord Morley, said that the Union formed not the least important part of the University. It was founded in 1861 by Mr. E. J. Broadfield, whom they were glad to have with them on the present occasion. The President raised considerable laughter by saying that he had been present on three occasions at least when the debating society had passed a resolution to mend or end the House of Lords. He took the opportunity to thank those who had contributed to the building funds, and especially the past students who had shown their loyalty to their *Alma Mater*.

Lord Morley said he would not spoil the occasion by what could be called an academic speech, nor would he open the great controversy touched on by Mr. Balfour and himself last year when they received degrees from the university as to whether literature or science were preferable; there might be preferences, but not exclusions. He then mentioned in a casual way one subject after another, lightly dismissing them all as too serious for the occasion, but incidentally he promised that later in the year he might have an opportunity of following up the subject of the rival claims of the old and the new universities.

Sir Frank Forbes Adams moved a vote of thanks to Lord Morley, which was supported by Miss McNicoll, Chairman of the Women's Union, and by Vice-Chancellor Hopkinson. When Lord Morley rose to respond he was received with a great burst of enthusiasm.

UNIVERSITY OF BIRMINGHAM.

The Ingleby Lecture.

THE Ingleby Lecture will be delivered this year on May 27th by Sir Thomas Barlow, Bart., K.C.V.O., M.D., F.R.C.P., who has chosen for his subject "Raynaud's Disease and Erythromelalgia: A Summary and a Review."

Lectures on the History of Medicine.

A course of three lectures, commencing on May 6th will be given by Dr. David Fraser Harris, F.R.S.E., on "The History of Discovery of the Circulation," "The History of Knowledge of the Respiration," and "The History of Knowledge of the Nervous System."

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary quarterly Comitia was held at the College on Thursday, April 29th, the President, Sir R. Douglas Powell, in the chair.

University of Geneva.

Dr. Pasteur, who was appointed to represent the College at the forthcoming 350th anniversary of the University of Geneva in July next, finding himself unable to attend, Dr. Habershon was appointed in his stead.

Membership.

The following gentlemen were admitted Members of the College: Clifford Beards, B.A., M.B.Oxon., L.R.C.P.; Edward Alfred Cockayne, M.B.Oxon.; Donald Elms Core, M.B.Vict.; William Griffith, M.B.Vict.; Frederick Gowland Hopkins, M.B.Lond., L.R.C.P.; Leonard George Joseph Mackey, M.D.Birm., L.R.C.P.; Percy Whittington Saunders, B.A., M.B.Toronto, L.R.C.P.; Henry Charles Gustavus Semon, M.A., M.B.Oxon., L.R.C.P.; Arthur Stanley Woodwark, M.B.Lond., L.R.C.P.

Licences.

The Licence of the College was granted to 91 gentlemen.

The quarterly report of the Examiners for the Licence on the results of the January examinations was received.

Fellowship.

On the nomination of the Council, the following gentlemen were elected Fellows of the College: John Edward Squire, C.B., M.D.Lond.; Theodore Stacey Wilson, M.D.Edin.; Charles John Macalister, M.D.Edin.; George Harold Arthur Comyns Berkeley, M.B.Cantab.; Robert Oswald Moon, M.D.Oxon.; Clive Riviere, M.D.Lond.; Oliver Key Williamson, M.D.Cantab.; Francis Arthur Bainbridge, M.D.Cantab.; John Shields Fairbairn, M.B.Oxon.; Otto Fritz Frankau Grünbaum, M.D.Cantab.; Joseph Shaw Bolton, M.D.Lond.; Charles Bolton, M.D.Lond.; Llewellyn Caractacus Powell Phillips, M.D.Cantab.

Communications.

The following communications were received:

1. From the Board of Trade, March 26th, on Beri-Beri, in continuance of previous correspondence in 1908. This was referred to the Standing Committee on Beri-Beri.

2. From Dr. Raymond Crawfurd asking permission to photograph the portraits of Sir Charles Scarburgh and Sir Edmund King, and a similar request from Mr. Leverton Harris, M.P., with regard to those of Dr. Cadogan and Sir George Baker, in possession of the College. Both requests were granted subject to the usual conditions.

University of London.

On the nomination of the Council, Sir William Allchin, M.D., was elected a Representative of the College on the Senate of the University of London for a term of four years from May 11th next, in place of Dr. Pye-Smith, who had resigned.

Admission of Women to the Examinations of the College.

The following by-law was enacted for the second time:

"Women shall be eligible for admission as Licentiates and Members of the College and for the grant of a diploma in Public Health on the same terms and conditions as men, and, so far as is necessary to give effect to this by-law, words in the by-laws and regulations importing the masculine gender shall include females, and all proper alterations shall be made in the forms of the letters, testimonial, and the licence granted by the College. *Provided always* that women shall not be eligible for election as Fellows of the College, or be entitled to take any part in the government, management, or proceedings of the College."

University of Sheffield.

Dr. Herringham was elected a Representative of the College on the Court of Governors of the University of Sheffield, in place of Dr. F. T. Roberts, who did not desire re-election.

Reports.

The following reports were received:

1. From the Committee of Management, dated March 22nd, recommending:

(*a*) That a revised syllabus of the examination for the diploma in Public Health be adopted.

(*b*) That the Grammar School, Cheltenham, be added to the list of institutions recognized by the Examining Board in England for instruction in Chemistry and Physics.

(*c*) That Merchant Taylors' School, which is already recognized for instruction in Chemistry and Physics, be also recognized for instruction in Biology.

These recommendations were adopted.

Library.

Books and other publications presented to the library during the past quarter were received, and thanks returned to the donors.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

ELECTION OF EXAMINERS.

AT a meeting of the Council held on Tuesday, May 4th, the following examiners were elected for the ensuing year:

Court "A."

For Conjoint Licence, Diploma in Public Health, and Preliminary.

Anatomy.—A. Fraser, F.R.C.S.; B. C. A. Windle, B.S. Univ.Dub.

Surgery.—C. A. K. Ball, F.R.C.S.; A. Blaney, F.R.C.S.; F. Conway-Dwyer, F.R.C.S.; R. J. Harvey, F.R.C.S.

Physiology and Histology.—D. J. Coffey, B.S., R.U.I.; E. L'Estrange Ledwich, L.R.C.S.

Pathology and Bacteriology.—A. H. White, L.R.C.S.

Midwifery and Gynaecology.—F. W. Kidd, L.R.C.S.

Biology.—J. J. Burgess, F.R.C.S.

Ophthalmology.—A. H. Benson, F.R.C.S.; H. C. Mooney; H. H. B. Cunningham, F.R.C.S.

Sanitary Law and Vital Statistics.—M. J. Russell, F.R.C.S., D.P.H.

Engineering and Architecture.—J. H. Fergusson, F.R.C.S., D.P.H.

Languages.—W. Kennedy, M.A., F.T.C.D.

Mathematics, Physics, Dictation, and English Essay.—J. W. Tristram, M.A.Dub.Univ.

Court "B."

Fellowship, Licence in Surgery (for registered practitioners), Licence in Midwifery (for registered practitioners), and Licence in Dental Surgery.

Anatomy.—A. Fraser, F.R.C.S.; E. P. McLoughlin, B.Ch.

Surgery.—C. A. K. Ball, F.R.C.S.; A. Blaney, F.R.C.S.; F. Conway-Dyer, F.R.C.S.; L. G. Gunn, F.R.C.S.

Physiology and Histology.—D. J. Coffey, B.S., R.U.I.; E. L'Estrange Ledwich, L.R.C.S.

Pathology and Bacteriology.—R. J. Rowlett, M.D.Dub. Univ.; A. H. White, L.R.C.S.

Midwifery and Gynaecology.—F. W. Kidd, L.R.C.S.

Chemistry and Physics.—E. Lapper, F.R.C.P.; R. J. Montgomery, F.R.C.S.

Dental Surgery and Pathology.—G. M. P. Murray, F.R.C.S.; W. G. Story, L.D.S.

In Mechanical Dentistry.—D. L. Rogers, L.D.S.; E. L. Sheridan, L.D.S.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FIRST PROFESSIONAL.—H. Shaw, A. M. Robertson, W. Laird, M. M'Closkey, J. J. Kelly.

SECOND PROFESSIONAL.—W. Millerick, C. S. Owen, A. L. Edwards, J. Macrae, J. A. Hutchinson, F. F. Keravalla, H. R. Macnab, C. Hunter, A. Caruana.

THIRD PROFESSIONAL.—H. F. Williams, J. Blackburn, P. Walsh, C. A. O'Driscoll, J. W. Robertson, D. R. Gazdar, W. Browne, E. D. Shroff, F. P. Quirk, N. B. Mehta, W. M. Thomson, R. C. Fuller, S. N. S. Aizangar.

FINAL.—D. G. Lindsay, N. B. Mehta, J. M'Call, V. G. Gokhale, H. E. Swan, Isabel Pulteney.

Public Health AND POOR LAW MEDICAL SERVICES.

LATEST PHASE OF THE CASTLEFORD DISPUTE.

WHAT is described in the *Yorkshire Evening Post* of May 1st as "an acrimonious discussion" took place at the last meeting of the Pontefract Board of Guardians. It had reference to the question of the remuneration of the district medical officer for the Castleford District of the Pontefract Union. It is now evident that the Pontefract guardians are prepared to do the right thing, but in the wrong way. More than twelve months ago the two medical officers of the Castleford District represented to the guardians that the work was most inadequately remunerated, and asked for an increase of payment. The guardians not only declined to grant this, but practically forced upon Drs. G. B. Hillman and W. Kemp the resignation of their appointments.

On March 7th, last year, we published in these columns an article, Seven Farthings for State Medical Service, giving surprising details of the parsimony and niggardliness of the Pontefract Guardians. No self-respecting medical man could have been expected to continue to discharge the duties under the circumstances clearly placed before the guardians. By a misuse of its power the board dismissed Drs. Hillman and Kemp from the posts of public vaccinator simply because they declined to continue to serve the State in another department at such a miserable apology for remuneration. The warning published in this JOURNAL and the unanimous attitude of the profession in the immediate district resulted in the guardians finding it impossible to secure more than one person willing to undertake the duties. To accommodate this applicant the two districts were combined, although quite recently the guardians had held that it was in the public interest that two districts with separate officers should exist. Within a few months the guardians capitulated and admitted the validity of the only point at issue by raising the salary 33 per cent. This concession, as we predicted on October 3rd, 1908, did not end the troubles experienced by the guardians. The *Castleford Express*, April 23rd, in reporting the proceedings of the Pontefract Board of Guardians, publishes the following letter addressed to the board by Dr. Hall, whose disregard of the warnings and facts of the case deprives him of all title to any sympathy on the part of his professional brethren:

> Will you kindly bring before the board my application for some substantial remuneration for my loss during the past year? The amount received is £194. In the advertisement the amount was stated to be £220: the increase of salary made it total £240. Medicines as supplied by Mr. Wainwright cost £57 1s., as per his bill. Surgical dressings, appliances, etc., cost £10. Dressings and instruments for vaccinations cost £10. Moving expenses £20. Amounts paid to other doctors for work done in my unavoidable absence, costs for assistance and loss in private practice. Consequently when these amounts are deducted there is very little left for my services. I will feel very grateful to the board if they will generously consider my request, as the only stimulus I have had since coming to Castleford is that the board have looked with kindness, sympathy and pity on me, through my troubled course here in Castleford. I would again assure the board of my earnest desire to carry out my duties allotted to me by them conscientiously and with as little trouble to them as possible. I feel I cannot close this letter without commenting on the numerous complaints made against me, and the careful way in which the board treat each case. I will now end by again thanking the board for their past consideration.

This letter appears to have roused the board to a sense of what the chairman is stated to have considered to be "a matter of honour." Drs. Hillman and Kemp, in their manly and straightforward application over a year ago, found no such response. The letter from Dr. Hall provides a complete vindication of the action of the previous officers, and demonstrates to the point of absolute proof the statements upon which the application for an increase of remuneration was based. The combined remuneration was £60 per annum. It was contended that this involved an actual loss. Dr. Hall's letter shows that the cost of drugs, surgical appliances, dressings, etc., amounted in the year to £67 1s., or £7 more than the combined salaries concerning which the dispute arose. Powerless to controvert these facts, we should have thought that a board, with any regard for its honour, would desire to seek to make some reparation for the injury and persecution inflicted on the two former officers. That stage, however, has not yet been reached. They prefer to reward Dr. Hall for his demonstration of the folly and unreasonableness of their action by voting him a bonus or allowance of £25. If Dr. Hall has performed the duties with credit to himself and satisfaction to the board and the public, he may be entitled to more remuneration than he has received; but as he entered upon the contract with the guardians knowing the circumstances, he seems to have little real ground for complaint for having made a bad bargain. The question of the legality of the "allowance" of £25 will surely engage the attention of the Local Government Board or the auditor, and it would not be surprising to find that members of the board who voted this consolation fee may have to pay for their sense of honour out of their own pockets. A surcharge might have the effect of causing the guardians to see the wisdom of doing what they ought to have done in the first instance, in which case many acrimonious discussions and wasted hours would have been avoided. Peace with honour is by no means secured by the latest phase of the Castleford Dispute. The guardians are beaten on the only point in dispute, and the simplest way to avoid further loss of dignity would be a frank and free admission that a mistake has been made.

LONDON MILK.

IN the course of a general discussion on the annual estimates at the London County Council on May 4th several questions relating to public health were raised.

Dr. Beaton moved a reduction of the Parliamentary Committee's estimate in order to urge that when the Council's General Powers Bill comes back from the Lords the House of Commons should be asked to reinsert the clauses relating to pure milk. Dr. Beaton thought that with the introduction of so complex a Budget there would be little likelihood of Mr. Burns being able to fulfil his promise to introduce general legislation on the subject of milk supply. The Chairman of the Committee, however, preferred to rely on the Government pledge.

The Public Health Committee was subjected to criticism from both sides when it brought forward its estimates. The Progressives wanted to know why there had been a delay of eleven months in putting into force Part IV of the London County Council General Powers Act, 1907, relating to milk inspection, and received the reply that preliminary arrangements took some time. Then Mr. Easton, from the other side, condemned milk inspection, and said the whole of the money spent on it was wasted. Dr. Beaton in reply said that with the limited powers it had the committee were doing excellent work in preventing tuberculous milk from coming into London. Next came Mr. Thompson, the late Vice-Chairman of the Council, who moved the omission from the estimates of an item of £330, "the expenses of the investigation of the Lister Institute into the causes of death from acute infection other than tuberculosis of guinea-pigs." Uninformed members laughed at this item, but Mr. Gilbert Johnstone (Chairman of the Committee) soon explained its significance. He said that of 1,025 samples examined by the Lister Institute, material from 167 samples caused the death from some acute infection, the nature of which was not ascertained, of guinea-pigs into which the material had been subcutaneously injected. Obviously this was a matter for careful investigation, for it might be that there was some worse danger than tuberculosis in the milk. The Lister Institute was prepared to continue the investigation for another twelve months, and the Public Health Committee felt that so large a percentage of deaths from an unknown cause was a matter which should be explained as soon as possible. The amendment was lost.

WATERY MILK.

IN a case decided recently in France a milk seller was fined 300 francs (£12)—a very considerable penalty as compared with those usually imposed at petty sessions in England—for delivering milk which was proved to be deficient in solids and fat, but which was said by the defendant to be the genuine product of his cows without added water. The deficiency was held by the court to be due to feeding the cows upon watery food or giving them an excessive quantity of water to drink. The writer in *La Semaine Médicale* (April 28th, lxvi), where the case is reported, quotes the passage from the *Georgics* of Virgil: "Ipse manu salsasque ferat praesaepibus herbas; Hinc et amant fluvios magis, et magis ubera tendunt," to show that it is no new discovery, and that the Latin peasants knew as well as the modern milkman how to increase the quantity of liquid given by their cows. The court rejected the defence, holding that if cows are fed on food which has this effect it is a dishonest proceeding, and the result is as much an adulteration of the milk as if the water had been taken direct from the pump. We do not know whether such a judgement has ever been given in this country, but it seems to be sound in principle.

THE CONTROL OF DIPHTHERIA.

E. F.—In the BRITISH MEDICAL JOURNAL for January 23rd, 1909, p. 219, a short account will be found of a discussion at the Society of Medical Officers of Health upon the scientific control of diphtheria. A fuller report is published in *Public Health* for March, 1909, p. 199. It is often extremely difficult to get rid of the Klebs-Loeffler bacillus from the throat or nasal passages of contact cases, more especially when there are no clinical signs of the disease. We believe it is usual for medical officers of health to expect to receive notification certificates of persons who are found to be harbouring Klebs-Loeffler bacilli.

Obituary.

GERALD FRANCIS YEO, M.D., F.R.S.,

EMERITUS PROFESSOR OF PHYSIOLOGY, KING'S COLLEGE, LONDON.

We much regret to announce the death of Dr. G. F. Yeo at the age of 64 years. Gerald Yeo, as he was usually known, was the second son of the late Henry Yeo, J.P., of Howth, Dublin, and was born in the year 1845. He received his early education at Dungannon School, Tyrone, and subsequently he went to Trinity College, Dublin, where he graduated as M.B. in 1867 and M.D. in 1871. In the latter year he was awarded the Gold Medal of the Pathological Society of Dublin for his essay on the diseases of the kidney. He started practice in Dublin, and became a teacher of anatomy in the university of that city; a year or two later he travelled and pursued further studies in the Universities of Paris, Berlin, and Vienna, and in 1874 was appointed to the Chair of Physiology at King's College, London, where he succeeded the late Professor Rutherford who had received a similar appointment in Edinburgh University. At first he combined his work at King's College with that of Assistant Surgeon at King's College Hospital, but he soon relinquished the latter post, and devoted himself entirely to the duties of his Chair, which he held for sixteen years, resigning it in 1890. After his resignation the Council of King's College bestowed upon him the title of Emeritus Professor.

Gerald Yeo was an enthusiastic worker, and fully maintained the high traditions of his Chair. During his Professorship he held a good many examinerships, and produced his well-known *Manual of Physiology*, which became a popular students' textbook, passing through six editions in less than ten years. He was not a voluminous writer of original papers, but all that he published was carefully thought out, and rested on the firm foundation of sound work. He is best known for his work performed in conjunction with Dr. Ferrier on the subject of cerebral localization in monkeys, a research which may truly be described as epoch-making. His other published papers related to the bile, the blood pigment, tissue respiration in the heart, muscle sounds, the graphic record of muscular contractions, and other subjects, the enumeration of which shows his versatility. Those interested in the antivivisection controversy will remember the struggle in which he and Dr. Ferrier were involved by an abortive attempt to prosecute them for their experiments on monkeys.

Among other positions that Professor Yeo held we may mention that he was Vice-President of the Section of Anatomy and Physiology at the meeting of the British Medical Association held at Worcester in 1882; he was one of the Secretaries (the late Professor Roy being the other) of the Physiological Section of the International Medical Congress held in London in 1881, a post for which he was particularly suited not only on account of his capacity for hard work, but also because of his fluency in foreign tongues. The great success which attended this Section is to be very largely traced to his efforts.

He is, perhaps, best known outside his Professorship as the first Secretary of the Physiological Society. In its early days this society was mainly a mutual protection society against the intrigues of the antivivisectionists, but it gradually developed into what it is now, a learned society in the more usual acceptation of that term. Yeo was one of the founders of this society, and threw himself into its work with characteristic energy. He held the office of Secretary for a period of fifteen years. When he resigned the post in 1890 the society marked their esteem for himself and for his work which had always been carried through with unfailing tact, by the presentation to him of a beautiful silver tea service. It is to Yeo in conjunction with one of his greatest friends, Professor Kronecker of Berne, that we owe the inception of the international physiological congresses which have met every three years since the first, which was held at Bale in 1891.

But Gerald Yeo had hobbies outside of his science, and dearly loved the country and country pursuits; he was a keen gardener, fisherman, and yachtsman, and many of his physiological colleagues will remember their visits to him at his country home in Fowey, where he was able to let them share with him his love of the sea. After he retired from King's College, he withdrew to Totnes, where he devoted himself almost entirely to country life, coming up to town only on rare occasions for meetings of scientific societies. He was elected a Fellow of the Royal Society in 1889.

He was twice married; first to Charlotte, the only daughter of Mr. J. Kitchen, in 1873, and secondly to Augusta Frances, second daughter of Mr. Edward Hunt of Thomastown, co. Kilkenny. He leaves a widow and several sons to mourn his loss.

A bare record of the career of Gerald Yeo such as the foregoing lines supply conveys little or nothing of the character and charm of his personality. Like most Irishmen, he was a fluent speaker and an attractive lecturer; he was a delightful companion, and the stories with which he garnished his conversation, and which were related in inimitable brogue, will long be remembered by his friends. He brimmed over with good nature and generosity, and with all this was a keen observer and judge of human nature, and all his actions were actuated with sound common sense. The world is the poorer by his loss, and keen regret will be felt by all who knew him, and sincere sympathy extended to those nearest and dearest to him.

JAMES LIMONT, M.A., M.B., M.R.C.P.,

FORMERLY PHYSICIAN TO THE ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE.

On May 1st James Limont, M.A., B.Sc., M.B.Edin., M.R.C.P., late of Newcastle-upon-Tyne, died in Edinburgh. For the last three years Dr. Limont had been in failing health, and two years ago he resigned his appointment at the Royal Victoria Infirmary and left Newcastle to regain his health if possible. A son of the late Rev. William Limont, Presbyterian minister at Alnwick, Dr. Limont was born in this quiet Northumberland town on April 9th, 1856. After a distinguished career in Edinburgh University, and after holding residential appointments in the Royal Maternity and Simpson Memorial Hospitals, and the post of Senior Demonstrator of Anatomy at the Minto House School of Medicine, Dr. Limont proceeded to Glasgow, where for a period he was House-Surgeon and House-Physician to the Royal Infirmary. Twenty-five years ago he became Senior House-Surgeon and House-Physician to the Newcastle Infirmary. In 1885 he was appointed Physician to that institution, an office the duties of which he discharged with great ability and much acceptance to the committee and patients. On the establishment of a department for skin diseases, Dr. Limont, who had been specially preparing himself for the post, was unanimously appointed Physician-in-Charge, in addition to his other duties. As a consultant, his opinion was frequently sought, while as a clinical teacher he stood out prominently among his colleagues, his method of instruction being much appreciated by the students. In the early years of his professional life he showed considerable interest in the meetings of the North of England Branch of the British Medical Association, and at the local banquets was in much request, for he sang with great taste and effectiveness. A well-known golfer, the name of Milton under which he played was held in high esteem. By the death of Dr. James Limont Newcastle and the North of England have been deprived of the services of a highly-trained and most capable physician. Much sympathy is felt for Mrs. Limont and her family of one son and four daughters.

ROBERT HARRISON WILSON, M.D.Dun.,

GATESHEAD.

A little over a fortnight ago the grave closed over the cremated remains of the late Dr. R. H. Wilson of Gateshead. Dr. Wilson had reached the age of 82, and, although for several years he had suffered from recurrent attacks of bronchitis and asthma, which obliged him five years ago to relinquish practice, he was at the time of his death in fairly good health. He had gone for his customary walk that morning, but during the course of the day was seized with an attack of heart failure to which he succumbed. Until within the last few years Dr. Wilson was one of the busiest of medical practitioners. He simply lived in his brougham, working from early morning till late

evening. It has fallen to few medical men to enjoy and to retain the confidence of their patients of all classes as Dr. Wilson did.

Dr. Wilson first came into public notice during the third and last epidemic of cholera in 1853, when his efforts to check the ravages of the disease were unremitting; in the following year, when there occurred the "great fire" in Gateshead and Newcastle, no man, it is said, worked harder or gave of his time so ungrudgingly to the wounded as Dr. Wilson. Besides Dr. Gibb, of Newcastle, who was house-surgeon in the Newcastle Infirmary at this date, there are few of his medical compeers left in the North of England, but there are still many of a younger generation who remember the many acts of kindness they received at the hands of Dr. Wilson, and by them his death is much regretted. Although in all senses of the word a most successful and esteemed practitioner, Dr. Wilson had experienced considerable grief and sorrow through family bereavement in the death of two of his sons—one in a mine accident—and the death of a married daughter. A widow, three sons, and three daughters survive him. The body was cremated at Darlington.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee.

CIRCULARS TO PATIENTS.

J. M. McL.—In sending out circulars care must be taken that they reach only those who are bona-fide patients of the practice. If they are sent out with the quarterly or half-yearly accounts there can be no question of the bona fides.

ADVERTISING BY CLUBS.

GEN. PRAC.—We do not think there is any objection to our correspondent accepting the appointment, provided that no further advertising of the club takes place.

Medico-Legal.

DENTAL MECHANICS.

W. F. G.—There cannot, we think, be any objection to a registered medical man employing a dental mechanic.

PROFITS DURING INTRODUCTION.

QUAERENS asks: In the case of a short introduction (six weeks) of a successor to a practice (not preliminary partnership), is the purchaser usually paid as assistant, or does he receive a share of the receipts; if so, what ratio of them?

*** This is a matter usually settled in the agreement of sale. During a short introduction all the profits might be shared equally between the vendor and purchaser, or one of them might pay all the expenses, take the profits, and make an allowance to the other.

The Services.

ROYAL ARMY MEDICAL CORPS (TERRITORIAL).

LECTURES ON ARMY SANITATION.

A COURSE of six lectures on army sanitation will be given in the Department of Military Hygiene of the Royal Institute of Public Health, 37, Russell Square, W.C., on Wednesdays at 6 p.m. On May 12th Surgeon-General Evatt, C.B., will deal with the officer and his duties in respect of the well-being of the soldier under his command; on May 19th Lieutenant-Colonel R. H. Firth will lecture on practical sanitation in camps; and on May 26th Lieutenant-Colonel C. H. Melville will speak on the essential principles of sanitation in the field. On June 2nd Lieutenant-Colonel R. J. S. Simpson, C.M.G., will deal with hospital work in war; on June 9th Professor R. T. Hewlett will lecture on the bacteriology of diseases common to armies in the field, and on June 16th the course will be brought to a close by a lecture by Lieutenant-Colonel C. S. Monckton Copeman, M.D., F.R.S., on inoculation methods for the prevention of diseases to which the soldier is liable. All officers of the Territorial Force are invited to attend, and further particulars can be obtained on application to the Honorary Secretary, Mr. James Cantlie, M.B.

Letters, Notes, and Answers.

BRITISH MEDICAL ASSOCIATION AND BRITISH MEDICAL JOURNAL.

THE offices of the British Medical Association and of the BRITISH MEDICAL JOURNAL are at 429, Strand, London.

COMMUNICATIONS respecting Editorial matters should be addressed to the Editor, 429, Strand, London, W.C.; those concerning business matters, advertisements, non-delivery of the JOURNAL, etc., should be addressed to the Office, 429, Strand, London, W.C.

TELEGRAPHIC ADDRESS.—The telegraphic address of the EDITOR of the BRITISH MEDICAL JOURNAL is *Aitiology, London*. The telegraphic address of the BRITISH MEDICAL JOURNAL is *Articulate, London*.

TELEPHONE (National):—
2631, Gerrard, EDITOR, BRITISH MEDICAL JOURNAL.
2630, Gerrard, BRITISH MEDICAL ASSOCIATION.
2634, Gerrard, MEDICAL SECRETARY.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

MANUSCRIPTS FORWARDED TO THE OFFICE OF THIS JOURNAL CANNOT UNDER ANY CIRCUMSTANCES BE RETURNED.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL, and not at his private house.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

☞ We would request correspondents who desire to ask questions in this column not to make use of such signatures as "A Member," "A Member B.M.A.," "Enquirer," and so on. By attention to this request much confusion would be avoided. Correspondents are asked to write upon one side of the paper only.

C. W. W. desires to hear of a quiet seaside place suitable for a young family, and where accommodation could be obtained for it at a moderate price, where facilities for bathing, golf, tennis, and excursions are available, and which is within two days' motoring of London.

HARD WATER AND ARTERIO-SCLEROSIS.

CALCIUM asks: Are there grounds for believing that the persistent drinking of hard water will lead eventually to arterial degeneration from presence of excess of calcium salts in the economy?

DISPENSING AND NON-DISPENSING PRACTITIONERS.

COLONIAL, now resident in England, is considering the conversion of a non-dispensing practice into a dispensing one. He would be glad of some idea of: (1) The salary required by a lady dispenser and bookkeeper; (2) what increase in the income may be expected in a practice of £1,000 per annum mainly upper-class patients.

TAPEWORM IN NURSING MOTHERS.

HELMINTH asks for counsel as to the treatment of a case of tapeworm in a patient nursing a healthy infant aged 4 months. Segments of the worm have been passed at intervals ever since the third month of pregnancy, their diameter being ¼ in. But for the fact that these segments are seen, there is little or no evidence, subjective or objective, of helminthiasis. The treatment prescribed, if any, should be such as will not interfere either with lactation or with the health of the infant.

INCOME TAX.

URTICARIA subscribes to a friendly society, in consideration of which he has recently received a weekly money allowance during illness. He asks whether the amount so received must be included in his statement of income for assessment to income tax.

*** So far as we are aware, the point has never been brought before the courts, and the Income Tax Acts do not specifically refer to it. In our judgement, however, sickness pay received from a friendly society is not assessable to income tax, and therefore we consider that our correspondent is not bound to include the amount received in his statement of income.

ANSWERS.

H. W. D.—Of the instruments mentioned, Oliver's latest compressed air haemomanometer is probably that best adopted for accurate observations.

M. S.—*Public Health*, the official journal of the Society of Medical Officers of Health, is published monthly, and deals with current public health matters. *The Sanitary Record* and *The Medical Officer* are each published weekly. The latter is styled "A Journal for Medical Men in the Government and Municipal Services," and a great deal of its space is devoted to sanitary affairs.

John P. Haig's "Cure" for Goître.

Some information with regard to Haig's goitre cure is given in a paper by J. Kochs in the *Apotheker-Zeitung*, abstracted in the *Pharmaceutical Journal* for April 14th, 1906, p. 447. According to this the "cure" comprises: Powders, consisting of sodium bicarbonate, coloured pale red; ointment, consisting of a sodium soap with yellow soft paraffin; pastilles, consisting of sodium bicarbonate, aloes, and a little oil of caraway; pastilles, consisting of extract of hydrastis.

Books on Christian Science.

The following might suit our correspondent's purpose: *The Faith and Works of Christian Science*, by the author of *Confessio Medici*, just published by Macmillan and Co.; *The Truth and Error of Christian Science*, by M. Carta Sturge (Moral Science Tripos, Cambridge), with an introduction by the Rev. H. S. Holland, M.A., Canon of St. Paul's, published by John Murray, Albemarle Street, London, 1905; *Christian Science: the. Faith and its Founder*, by Lyman P. Powell, published by G. P. Putnam's Sons, New York and London, The Knickerbocker Press, 1907; *Christian Science, Medicine, and Occultism*, by Albert Moll, M.D., Berlin, only authorized translation from the German, by F. J. Rebman, published by Rebman, Limited, 129, Shaftesbury Avenue, W.C., 1902; *Faith-Healing and Christian Science*, by Alice Fielding, published by Duckworth and Co., 3, Henrietta Street, W.C., 1899; *Christian Science*, an Exposition of Mrs. Eddy's Wonderful Discovery, including its Legal Aspects, by William A. Purrington, published by E. B. Treat and Co., 241-243, West Twenty-third Street, New York, 1900. But perhaps, after all, Mrs. Eddy's own book, *Science and Healing*, to the intelligent reader supplies the most convincing refutation of her doctrines.

LETTERS, NOTES, ETC.

Dr. Sydney Graham (Watchet, Somerset) desires on behalf of Dr. Sharpe and himself to thank those friends who supported the candidature of the son of Dr. John Sharpe, late of Watchet, but now of Berrow, Burnham, Somerset, for admission to the Royal Masonic Institution for Boys. The boy was placed thirty-fifth out of forty-nine vacancies.

The Treatment of Ankylostomiasis.

Dr. W. Robertson (Durban, Natal) writes to say that some years ago he drew attention in the *South African Medical Record* to the utility of sulphur in bilharziosis. He has since tried it in ankylostomiasis with equally good effect. He suggests that possibly the ingestion of sulphur kills the parasites by increasing the percentage of H_2S in the intestines.

Appendicitis and Rheumatism.

Dr. Robert T. Morris (New York) writes: In the letter recently sent to the British Medical Journal, in which I commented upon the large proportion of cases of appendicitis of rheumatic origin in the practice of Dr. Alexander Haig, I had no intention of calling into question the accuracy of observation of such a renowned teacher of the profession, whose position is too responsible to allow of his making loose statements. It was simply a question of the relative proportion of cases of each one of the four kinds of appendicitis that would find their way to the offices of men engaged in different fields of practice. Dr. Haig would naturally see more cases of rheumatic origin. In my own practice at least half of the cases of appendicitis are apparently of mechanical origin. In the practice of the gastro-enterologist, on the other hand, it is probable that much more than half of the number of cases of appendicitis are of the fibroid degeneration type, and not infective or rheumatic. Fibroid degeneration appendices, occurring in the course of normal involution of the appendix, perhaps form the largest class, and seem to present the most common single cause for "intestinal dyspepsia." One of my colleagues recently said that the reason why these appendices are often called "Morris's appendices" is because no one else can find them. As a matter of fact, almost any one can find them if he will make deep pressure over the site of the right group of lumbar sympathetic ganglia, about 1½ in. to the right of the navel. If there is hypersensitiveness at this point, and not at a corresponding point at the left of the navel, the rest of the testimony bearing upon the point will have a good basis in evidence. Such appendices on removal will be found to be undergoing fibroid degeneration in the course of their involution, on microscopical examination they will be found to contain much hyperplastic connective tissue, and persisting nerve filaments will be surrounded by such groups of new cells that one can easily enough read the hieroglyphics as meaning that contraction of the connective tissue is producing an irritative lesion, sufficient in degree to excite the intimate ganglia of the bowel wall (Auerbach's plexus and Meissner's plexus), and to lead to perversion of intestinal function, with the symptoms of "intestinal dyspepsia." Such appendices will be found more often in the practice of the gastro-enterologist. Rheumatic appendices will be found more commonly in the office of Dr. Haig. Appendices which are the site of acute infective invasion, with the mechanical feature dominant in the cause and effect relationship, will be found more often in the hands of the surgeon. We thus have a shield with more than one side, and one may perhaps be careful about generalizations when he speaks of appendicitis as a diagnostic entity, and without qualification as to kind.

Foul Breath.

This disagreable infirmity is associated with a large number of pathological conditions, and in any given case the particular lesion must be sought out and effectively treated. In a paper read to the West London Medical Society last year (*West London Medical Journal*, April, 1908) Dr. Andrew Wylie summarized them very completely, and drew attention to one or two points not generally known. He pointed out that free discharges of the nasal contents may not occur, although there may be no real obstruction, owing to desiccation of the mucous membrane in roomy or wide nostrils, and this may be the result of too energetic treatment of the turbinate bones by the galvano-cautery, or be due to constitutional causes, such as anaemia. Chronic epistaxis in plethoric persons may be attended with fetor, as the blood adheres to the mucous membrane, soon becomes septic, and creates an unpleasant odour. But while it is undoubtedly the case that foul breath is commonly associated with definite pathological conditions, it is also true that any one of them may be present without giving rise to fetid breath, and, further, that the foul odour may be present apart from any pronounced disease. The fetor is not the direct consequence of the inflammatory condition or growth or deformity, but of local infection by one or more of the many fetor-producing organisms, usually belonging to the groups of coliform, mesentericus, or putrefactive bacteria, which are only imperfectly known and are well deserving of special study. One of the difficulties in writing about them is that there are not only many names for the same organism, but it is not always certain that two writers mean an identical organism when they call it by the same name.

The Prefrontal Vein as a Means of Identification.

In the *Gazzetta degli Ospedali* of April 16th, Professor Tamassia, of Padua, who has recently been made Senator of Italy, suggests, as a subsidiary aid to identification, recording the disposition of the prefrontal vein or veins. If a vertical line is drawn from the glabella upwards the relation of the vein or veins to his line can be graphically recorded and form a means of identification. The vein may run strictly parallel to the vertical line, may form an angle with it, may cross it, may run in duplicate on either side or as two parallel veins on one side. In addition to the direction of the vein, note is made as to its fullness, tortuosity, etc. The author has made many observations and believes that the variations in the disposition of the frontal vein are sufficiently marked to make this a useful addition to our means of personal identification.

Insurance Applications

The way in which application forms for insurance are filled up are often more amusing than enlightening. As illustrations we take from the *Medical Examiner* of New York the following statements said to have been made in applications in the United States:

Mother died in infancy.

An uncle died of cancer on his mother's side.

Father went to bed feeling well, and the next morning woke up dead.

Grandfather died suddenly at the age of 103. Up to this time he bid fair to reach a ripe old age.

Applicant does not know anything about maternal posterity, except that they died at an advanced age.

Applicant does not know cause of mother's death, but states that she fully recovered from her last illness.

Applicant has never been fatally sick.

Father died suddenly; nothing serious.

Applicant's brother, who was an infant, died when he was a mere child.

Grandfather died from gun-shot wound, caused by an arrow, shot by an Indian.

Applicant's fraternal parents died when he was a child.

Mother's last illness was caused from chronic rheumatism, but she was cured before death.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication: and, if not paid for at the time, should be accompanied by a reference.

N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.